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THE EFFECT OF SURGICAL OPERATIONS ON BLOOD PRESSURE*

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DISEASE of the cardio-vascular system is by far the most common cause of death and all figures available demonstrate that it is becoming more frequent. In the majority essential hypertension is ascribed as the primary cause, and alone is said to account for 25% of the total mortality in those over 50 years of age. This being the case, the study of hypertension is one of the most important in the whole realm of medicine.

Innumerable drugs, diets, and physical agents have been advocated and many have attained temporary popularity in the treatment of essential hypertension. In examining the claims of each of these when first advanced a curious similarity is discovered. It is stated almost invariably that one-third of the patients show improvement, one-third are unchanged, and one-third become worse. But in time each innovation is forgotten so that there is still no single treatment that can be depended upon to produce direct or lasting results. These false hopes have arisen so frequently because of two circumstances in particular. The first is that there are wide normal variations in every individual which may easily be mistaken for therapeutic effects, and the other is that the subjective symptoms commonly ascribed to "blood pressure" are readily influenced by almost any treatment.

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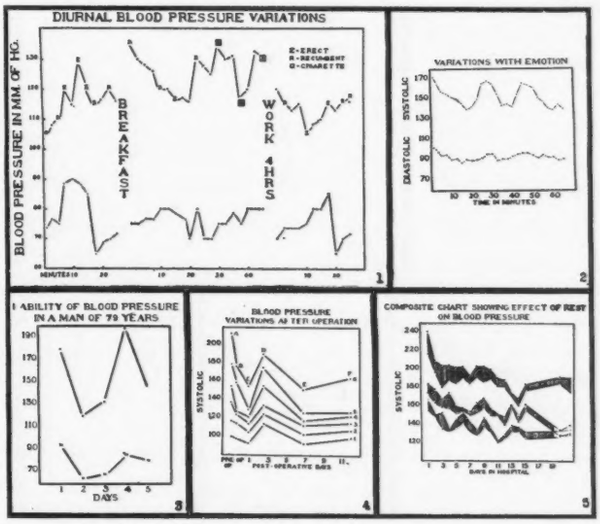
NORMAL VARIATIONS IN BLOOD PRESSURE

Wide variations in blood pressure take place in normal people during their usual activities. This is illustrated in Fig. 1 which shows some changes that were found in a normal youth during a quiet day at home. No physical or emotional strain occurred during the day, but still the systolic pressure varied from 105 to 135 and the diastolic from 65 to 90 in response to change of posture, digestion and sedentary work. If much activity, mental or physical, had been indulged in the swing might have been much wider in range. This is a completely normal record and represents what occurs in most people.



Essential hypertension is in the beginning simply an accentuation of these physiological changes. For reasons that are still unknown the psychosomatic mechanism that governs increase in blood pressure becomes more sensitive so that normal stimuli produce responses that are abnormally profound and prolonged; the whole reflex is set on a more sensitive trigger. A condition of paroxysmal or intermittent hypertension is thus produced in which the blood pressure swings through a very wide range

in response to minor stimuli. Fig. 2 illustrates such a case. During this series of observations (60 minutes) the patient was recumbent. She was encouraged to remain silent, relax, and go to sleep if possible, and the pressure fell from 170/100 to 135/85 in the course of 15 minutes. Then for a few minutes her personal troubles were discussed and the blood pressure immediately returned almost to its original high level. On again being encouraged to rest it returned to normal. This whole series of changes was then induced a second time. Fig. 3 shows enormous lability in a healthy old gentleman. The blood pressure taken under basal conditions in hospital on consecutive days is shown. No explanation whatever was found and he had no subjective changes.

The paroxysmal stage of hypertension may last for many years. It can be discovered in a considerable proportion of healthy young people when they are under stress. It is found in possibly 10% of healthy recruits; as a result of the stimulation associated with the examination, their blood pressure will be found to be definitely elevated (135 to 160). After a short rest it will become normal. It is also found in many applicants for insurance. The point at which it ceases to be physiological and becomes pathological is difficult to determine. Insurance statistics suggest that any rise above 125 mm. Hg. at an ordinary examination reduced life expectancy and it is therefore implied that such people have incipient or potential hypertension. This may be so when thousands of cases are averaged, but is not necessarily so for many such individuals.

We have dwelt upon spontaneous (*i.e.* non-therapeutic) oscillation in blood pressure because there seems no doubt that it has been frequently overlooked in judging therapeutic effects and accounts for the multitude of drugs and procedures that have from time to time been hailed as "cures".

Symptoms Ascribed to Blood Pressure

The second feature that adds difficulty to the estimation of therapeutic effect is that symptoms are very insecure evidence on which to base judgment. The fact is that hypertension produces no special subjective feelings until the late stages and then because the heart, brain or kidney are involved in secondary changes. Every day we all see cases with very high pressure who are symptomless and feel particularly vigorous. In fact these people are usually more energetic than those with low blood pressure. But unfortunately it has become the fashion to attribute to hypertension any abnormal sensation that happens to be associated with it. For example, consider a woman who comes complaining of insomnia, undue fatigue, headache, palpitation and nervousness; if her blood pressure and other physical findings are normal she is given general advice, encouragement and a mild sedative, and she improves. If, on the other hand, slight hypertension (even 150/90) is present she may be told that her symptoms are due to "high blood pressure". She is thereby given a very respectable pathological peg on which to hang her anxiety bonnet, embarks on a life rotating about blood pressure readings and lives in the sinister shadow of apoplexy, heart failure and Bright's disease. She becomes first class material for a subjective "cure", especially if it has the approval of *Life* or *The Reader's Digest*. The symptoms in this very large group of patients are almost entirely due to anxiety induced by the fear of hypertension and no class of people are so responsive to any sort of treatment so long as it is given seriously.

Surgery and Blood Pressure

The most recent innovation in the treatment of essential hypertension is sympathectomy. According to some reports gratifying results have been obtained; blood pressure is said to be reduced in certain cases, but usually it is emphasized that the subjective benefit has been much out of proportion to reduction in tension. All postoperative improvement whether objective or subjective is usually attributed to the specific effect of the operation. In view of the known lability of blood pressure and the effect of suggestion on symptoms these claims demand critical examination. Volini and Flaxman[11] have produced evidence to show that, "Symptomatic relief and reduction in blood pressure resulting from non-specific surgical measures (*e.g.*, hysterectomy, prostatectomy, cholecystectomy) in the presence of essential hypertension are similar to and sometimes better than those obtained by specific procedure (extensive sympathectomy, splanchnic nerve section, cœliac ganglionectomy) performed especially for those purposes in the treatment of essential hypertension."

In order to clarify the issue we have done some investigation to determine blood pressure

changes associated with major non-specific operations and to compare them with those claimed for various sympathectomy operations.

METHOD AND MATERIAL

Through the courtesy of the attending staffs at St. Boniface and Winnipeg General Hospitals we were given the opportunity to follow 280 patients before and after operation. Approximately the first 150 cases were unselected and taken in order from the operation slate, the remainder were chosen because the blood pressure before operation was abnormally high. Those with recognizable organic causes for hypertension (*e.g.*, nephritis, hyperthyroidism, aortic regurgitation, etc.) were not included and only those who had major operations were used. These operations included all that are commonly done in general hospitals. Any operation that might have a direct effect on the blood pressure, (*e.g.*, thyroidectomy and operations on the central nervous system) was excluded.

The records were discarded in those patients who died while in hospital and some others in which information was incomplete. As a result of this selection the original group of 280 was reduced to 208 and it is from a study of these that the following observations are made.

In all cases the blood pressure was recorded at the following times: (1) The night before operation, after admission to hospital. (2) In the morning, before operation. (3) Immediately on return to the ward from the operating theatre. (4) As soon as signs of consciousness returned. (5) One hour after regaining consciousness. (6) Approximately eight hours after the operation. (7) Each succeeding morning for four or five days. (8) And then at least on alternate mornings for the duration of hospitalization.

Whenever possible readings were taken under "basal conditions",[12] *i.e.*, free from any circumstance that might tend to temporary elevation of pressure. On each occasion repeated readings were taken until the pressure settled to a constant level. Only three individuals participated in collecting the records. In addition to the foregoing, a record was kept of age, sex, anæsthetic, duration of anæsthetic, and the postoperative course; also in many of those with hypertension, study was made of symptoms before and after operation.

The pre- and post-operative medication was uniform; all patients received a sedative on the night before operation and almost without exception they had morphine and several thousand cubic centimetres of intravenous glucose solution post-operatively.

The figures that were collected from these observations were analyzed in various ways; the results and conclusions are presented under separate headings.

THE GENERAL EFFECT ON BLOOD PRESSURE

A graph was made to show the variations in blood pressure throughout hospitalization in each case, and it was found that the course of events was in general the same in all. For purposes of analysis the cases were divided into 6 groups constituted as follows:

Group	*Initial blood pressure*	*No. of cases*
I	90 – 109	18
II	110 – 129	78
III	130 – 149	62
IV	150 – 169	25
V	170 – 189	12
VI	190 +	13
		208

Fig. 4 presents a composite graph of the systolic blood pressure in each group.

The resulting curves are similar in conformation. There are 6 important points in each, which for convenience are denominated by the letters A, B, C, D, E and F. Definition of these points and their relation to one another follows: A. Initial reading on the night before operation. B. Blood pressure immediately before operation. This was lower than "A" in all groups. C. The lowest point within the first 24 hours postoperatively. This showed a further depression below "B". D. The highest point after operation (postoperative recovery). This point is relatively higher in low blood pressure groups. In groups I and II, which may be arbitrarily considered to be normal, it reaches a point above the initial level; in groups III and IV, which are intermediate, it reaches a point almost identical with what it was on admission. In contrast to this in the definitely hypertensive groups (V and VI) it does not recover to the original height. The maximum postoperative recovery occurred at various times, the average being 2.7 days as shown in Fig. 4. Analysis of each group showed that there was a definite tendency for those with normal blood pressure to recover more rapidly; the average rebound time for the three lower groups was 2.2 days, whereas the three higher groups required 4

days. E. The lowest point before discharge. This occurred, on an average, 7 days after the operation; it was delayed in the hypertensive groups but only to the extent of one day. F. Blood pressure on discharge. This was on the average slightly higher than "E", possibly due to the fact that most patients had been allowed up.

The important point for purposes of this investigation is the total fall in blood pressure in each group. This is measured by the interval "A" to "E", and is shown in Table I below.

TABLE I.

TOTAL SYSTOLIC AND DIASTOLIC FALL

Group	*Systolic* *mm. Hg.*	%	*Diastolic* *mm. Hg.*	%
I	– 7	– 7.0	– 6	– 8.9
II	–14	–11.9	– 7	– 9.3
III	–25	–18.2	–14	–16.4
IV	–38	–24.6	–13	–14.9
V	–53	–29.5	–23	–23.7
VI	–62	–29.1	–27	–23.4

The total systolic fall will be seen to vary from 7 millimetres of mercury (7%) in group I to 62 mm. of mercury (29.1%) in group VI. The actual drop and the percentage drop increases in a regular way as we move from the low to the high pressure groups. The only exception to this is that the percentage total fall in group VI does not increase over that of group V. This is explained by the fact that the highest group, *i.e.*, VI, contains some cases in which the blood pressure had become fixed by organic changes.

From a study of these figures several conclusions may be drawn.

(*a*) Hospitalization and major surgery is associated with a definite drop in systolic pressure; indeed, the only exceptions were a few cases with very low blood pressure.

(*b*) The extent of the reduction varies directly with the height of the preoperative blood pressure, *i.e.*, those with low pressures show only slight total and percentage reduction, whereas those with hypertension show a marked fall.

(*c*) There is a marked contrast in lability in various groups. Those with low or normal readings continue at a fairly steady level throughout, while those with hypertension swing through a wide range. But each deflection whether up or down is directly proportional to the height of the original blood pressure. This is true not only when measured by actual millimetres of mercury, but also when it is computed in percentage of the initial pressure.

(*d*) Rebound from postoperative depression of blood pressure is more prompt and more vigorous in those with lower pressures.

Effect on diastolic blood pressure is shown in Table I. A study of this will show that the actual and the percentage reduction in diastolic increases in a regular way from groups I to VI and is roughly comparable with but slightly less than the systolic fall.

EFFECT OF SPINAL AND GENERAL ANÆSTHESIA COMPARED

The major deflections were compared in two groups, one having had a spinal and the other a general anæsthetic. No consistent or significant difference in the blood pressure effects could be detected. This is contrary to the usual opinion. Very frequently patients with hypotension are regarded as poor risks for spinal anæsthesia because of the fear that critically low levels may be produced; also, hypertension is thought by some to be a contraindication to spinal anæsthetic because of the possibility of abrupt reduction in blood pressure and consequent thrombosis.

Our conclusions of course only apply to postoperative findings. There is no doubt that the immediate effect from spinal anæsthetic is to produce a marked fall in blood pressure and this is always guarded against by the use of ephedrine. It is probably because of this well-known immediate drop that postoperative depression in blood pressure is regarded as a danger in spinal anæsthesia. Since the effect of ephedrine lasts for only about one hour it is not likely that its administration with spinal anæsthetic influenced our figures, because they were derived from observations after return to the ward.

EXPLANATION FOR FALL IN BLOOD PRESSURE

In an attempt to explain the above findings various possibilities present themselves. (1) Change of environment may have a profound effect. Patients have often escaped from sources of irritation and anxiety; they are for the time in the preferred position of the invalid with all the protection and solicitude that this implies. (2) Physical rest in itself may be a contributing factor. (3) A degree of depletion consequent to low diet, purgation and blood loss may play a part. (4) Shock, tissue destruction and distortion of the sympathetic nervous mechanism may have an influence.

(5) Psychological effects of major surgery are complex and could possibly contribute in some cases. The operation in some instances removes a source of anxiety and produces a feeling of security.

In an effort to discover what the operation itself contributed we planned to subject some hypertensive patients to the preoperative treatment, anæsthesia and the postoperative medication that is usual. In other words, we hoped to create the general atmosphere of an operation without the actual surgery. This plan was found impracticable, but we were able to put a series of 27 cases on complete bed rest in hospital, without any specific treatment except the amount of sedative necessary to produce a reasonable amount of sleep.

Cases were divided into three groups corresponding in blood pressure to groups IV, V and VI above. The results are shown in Fig. 5 which is a composite graph of the average readings in each group.

A series of blood pressure readings were taken under basal conditions each day. In the figure systolic pressures only are indicated. The two readings at each point represent the high and the low reading at each session; the vertical lines therefore represent the systolic "swing" during the period of observation (from 5 to 15 minutes). In analyzing these curves the lower figures only were used since these correspond to the basal readings used in the cases that were operated upon.

It will be seen that the blood pressure in each group gradually falls from day to day. In group IV (initial average blood pressure 150-169) the low point is reached on the eleventh day, in group V (initial average blood pressure 170-189) the low point is one day later, *i.e.*, on the twelfth day, and in group VI (initial average blood pressure 190+) the low point is not reached until the fourteenth day. In every group there is a tendency to a slight rise after the first fall; this is partly attributable to relaxation of the rest regimen; it is temporary in groups IV and V; indeed in group V the blood pressure is even lower on discharge. In group VI there is a slight increase in blood pressure during the third week of observation which is maintained until discharge.

This drop is found to be almost identical in extent with what has already been demonstrated to occur during hospitalization for major surgery. Comparison is shown in Table II.

TABLE II.

TOTAL FALL IN SYSTOLIC BLOOD PRESSURE

	Rest alone	*Non-specific operations*
Group IV	155 to 122 (23.3%)	155 to 117 (24.6%)
Group V	175 to 129 (26.3%)	179 to 126 (29.5%)
Group VI	218 to 161 (26.1%)	213 to 151 (29.1%)

We conclude from these results that the fall in blood pressure associated with major surgery is chiefly due to the general effect of hospitalization and not to any specific effect of the operation. The main factors involved are no doubt rest and change of environment with all that this may imply physically and psychologically.

COMPARISON WITH RESULTS FOLLOWING SYMPATHECTOMY

Both sets of figures that have been presented above correspond in a general way with the immediate effects usually attributed to various sympathectomy operations. Unfortunately it has been possible to get but few actual figures for comparison because of the variety in the methods of recording and reporting. Many reports merely give isolated readings before and after operation. The only detailed account of the immediate postoperative variations is given by Crile[4] in which the average postoperative course of eleven cases over a period of 17 days is presented. The average total fall in systolic blood pressure is from 220 to 157, that is, 28.6%. This figure is not significantly different from that produced by rest and non-specific operations (*i.e.*, 26.1 and 29.1% respectively).

SYMPTOMATIC RELIEF

Almost all writers who present the results of sympathectomy operations insist that the symptomatic relief is out of proportion to the actual reduction in blood pressure. In our introduction we point out that there are no symptoms peculiar to uncomplicated hypertension, and that suggestion has a profound effect on the common complaints of these patients. In order to determine whether or not there was any symptomatic effect from non-specific operations or from rest alone, a series of 28 cases was closely studied with this in view. The period of observation varied from 2 to 8 weeks. Eight of the 28 patients had no symptoms that could be ascribed to hypertension before or after observation in hospital. Of the remaining 20, 17 (85%) professed improvement, 5 showed remarkable improvement and 12 showed moderate improvement. It is to be noted that these patients were not being treated so far as they

knew for "blood pressure". Any effect was not due therefore to direct suggestion, but to the general effect of rest and change of environment. The drop in blood pressure and improvement in symptoms corresponded only in a rough general way. Ten of the 17 whose symptoms improved were followed for some months (average 4) and there were only 2 of these who became worse in that interval; one relapsed completely and one partially. These results are comparable to or better than those usually claimed for specific operations.

This investigation is open to the same criticisms that may be directed against any study based on subjective findings. But we feel that it is comparable to similar studies following sympathectomy operations. We have been thoroughly conscious of the complexity and delicacy of the psycho-somatic mechanism involved, and have been on the alert to prevent direct suggestion.

CONCLUSIONS

1. The blood pressure of 208 cases before and after major operations and 28 additional cases with hypertension who were not operated on were followed during hospitalization.

2. There was a definite reduction in blood pressure in all cases which was similar in the two groups (*i.e.*, operative and non-operative).

3. This reduction was much greater in actual mm. of Hg. and in percentage in those with high blood pressure.

4. The actual reduction and the percentage reduction in systolic and diastolic is comparable to what is usually stated as being due to specific operations on the sympathetic nervous system.

5. Subjective symptoms also have a tendency to disappear during hospitalization whether or not operation is performed.

6. We do not presume to conclude from the evidence here submitted that sympathectomy operations must never be done for hypertension. It is, however, obvious that alleged specific effects must be measured against known non-specific effects which take place concurrently with all surgical operations. Careful and prolonged observation under various conditions must be made before and after sympathectomy before definite conclusions can be arrived at. This has not always been done in cases that have been reported.

We wish to acknowledge with most sincere thanks the assistance of Dr. C. S. Allen and Dr. Evelyn Gamble in collecting the data for this investigation.

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RÉSUMÉ

Cette étude est basée sur les variations de la T.A. de 208 malades avant et après des opérations majeures; 28 malades additionnels souffrant d'hypertension artérielle, *mais qui ne furent pas opérés*, ont été observés au point de vue des variations de la T.A. durant leur séjour à l'hôpital. Une diminution très nette de la T.A. fut enregistrée aussi bien chez les malades opérés que chez ceux qui ne le furent pas; en fait, l'abaissement fut plus marqué en mm. de Hg. et en pourcentage chez les hypertendus non opérés, et les résultats sont comparables à ceux que l'on observe à la suite des opérations dites spécifiques sur le sympathique. Les signes subjectifs de l'hypertension ont tendance à disparaître au cours de l'hospitalisation, qu'il y aît opération ou non. Ces remarques ne visent pas à condamner le sympathectomie; elles n'ont pour objet que d'attirer l'attention et de faire observer davantage ce qui se passe avant de conclure en faveur d'une méthode à l'exclusion d'autres. JEAN SAUCIER

So far as can be observed there has been no appreciable increase in the incidence of mental illness directly attributable to the stress of war. This point was emphasized at a recent conference of the Ex-Services Welfare Society at which was discussed the treatment of disabled men and women suffering from war neuroses and psychoses. It was urged that the work provided for such persons should be adapted to their capacity, and as an illustration of what could be achieved in this way reference was made to the way in which the Army was getting good work out of men of low mental categories simply because the military authorities took the trouble to fit them into jobs for which they were suited. It was suggested that this principle was just as applicable to industry as to the armed services and that it opened up a vista of what might be done in the future if psychiatrists assessed the mental and nervous capacities of individuals, detected their special aptitudes, and placed them in situations where they would be happy and give the best possible return for their money.—*J. Roy. Inst. Pub. Health & Hyg.*, 1943, **6**: 113.

SOME ASPECTS OF STERILITY*

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THE purpose of this paper is not to discuss the whole complex question of sterility but rather to present some impressions gained as a result of some years of work in a sterility clinic.

It is of course necessary to study both partners to a "sterile" marriage, since the fault may lie with one or the other or with both. Actually "sterility", as we use it, is not a good term: few of either sex are truly sterile and few fully fertile, as Meaker[1] has pointed out. "Infertility" or "diminished fertility" would be a better term and the infertility of any marriage is the sum of the two individual infertilities.

For practical purposes we have adopted a very simple classification of our cases, dividing them all into four groups: (1) male defects; (2) female defects, of embryological origin; (3) female defects, due to mechanical blockage of the generative tract; (4) female defects, due to endocrine deficiency—this is the group with what is often called "functional sterility".

It would be simple to criticize this classification, but in practice it works very well and avoids the complexity of more elaborate schemes.

MALE INFERTILITY

In studying male infertility a detailed study of the seminal fluid is necessary in addition to careful history-taking and complete physical examination. It is not enough to note the presence of active spermatozoa in a microscopic field: the amount, turbidity and viscosity of the semen requires study, as well as the number of spermatozoa present per c.c. and their total count, the quality and duration of their motility, their morphology and the percentage of abnormal forms, all must be noted before arriving at any conclusion. In addition testicular biopsies may be found of assistance. Most recent writers on sterility state that of the husbands of women who seek advice because of impaired fertility, about 40 or 50% will themselves be found to be deficient in their reproductive capacity. The number of men whose spermatogenic function we have found to be defective has been somewhat of a surprise; of the last 40 who have had one or more carefully carried out analyses, only 11 were passed as "good", 7 as "fair", and 22 were called definitely "poor", of whom 5 showed azoospermia. While this may not be truly representative of all the husbands of the patients of our clinic it suggests the advisability of paying more attention to the male partner than has been the custom hitherto.

THE EMBRYOLOGICAL GROUP

This is a small group. Here it is chiefly a question of failure of development of the Müllerian tract. Usually the uterus is so rudimentary as to be scarcely palpable apart from the cervix. These cases are not very common; and the patients are often amenorrhœic, though there may occasionally be some scanty menstruation. That there is ovarian activity of some degree is shown by the secondary sexual characteristics which are sometimes quite well developed. There may be, of course, other defects, such as congenital absence of the vagina, but these are still less common than the foregoing. In all this group the possibility of successful therapy is remote; in some uterine growth and bleeding can be induced by administration of œstrogen and progesterone, but we have been unable to produce spontaneous menstruation, without which fertility is out of the question.

There are also women whose uteri are small, or "infantile" or "hypoplastic". Whether they should be regarded as developmentally defective or as representing a deficient growth stimulus to the genital tract it is difficult to say. In this "hypoplastic" group a certain number appear to be infertile and in some it is difficult or impossible to induce uterine growth, but it is a common experience to find women whose uteri are definitely hypoplastic who have little or no difficulty in becoming pregnant, and for this reason therapy is usually not indicated at the outset, at least, and great reserve should be maintained in assessing what may appear to be its result.

MECHANICAL BLOCKAGE

This is a large group and most writers place about 50% or more of their cases of "sterility" in it. We have not found the proportion to be so great in our experience, but it is still a large and important group. Here the trouble is a mechanical blockage of the reproductive tract which is probably always acquired. It may, of course, be anywhere in the tract but is nearly

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always in the tubes and practically always inflammatory in origin. The most common cause is probably gonorrhœal infection, which usually blocks the fimbriated ends of the tubes; but the blockage is not infrequently due to non-specific infections which may affect the tubes after abortion or childbirth. And we must not forget that any intra-abdominal inflammatory process which involves the serosal surfaces of the pelvic viscera may produce adhesions which by pressure from without may occlude the lumen of the tubes.

One may suspect closure of the tubes if the patient's history of discharge, frequency, dysuria, etc., suggests previous Neisserian infection; or if pelvic examination shows the presence of adnexal disease, particularly masses in the region of the tubes and ovaries. But it is impossible to make such a diagnosis without attempting to pass air or other gas or lipiodol through the tubes. The former is the Rubin test and is so simple that it may be employed as a routine office procedure provided one has the necessary assistance; indeed, there are advantages in making this test without anæsthesia, because the patient may get up as soon as it is over, when, if the air has passed through her tubes into the peritoneal cavity, it will rapidly rise under her diaphragm where it very frequently gives rise to pain of an aching character in the shoulder and back of the neck which may last for hours or even days. This is apt to be missed with a patient anæsthetized and in bed. The lipiodol examination of the tubes can also be done with advantage without anæsthesia. Here lipiodol or other radio-opaque sterile oil is injected into the uterus under enough pressure to force it into the tubes if they are open. Its progress may be watched under the fluoroscope, and x-ray plates taken at once and at intervals of one and twenty-four hours will show whether or not the tubes are patent, and, if they are blocked, the site of the closure becomes apparent.

These procedures are not entirely without risk and must be carried out only upon definite indication and with the strictest aseptic precautions. Feiner[2] in a recent review of the subject has reported one death after each type of procedure and several cases of salpingitis and pelvic peritonitis. In our clinic we have seen one case of air embolism after insufflation of the tubes and one of acute salpingo-oöphoritis following instillation of lipiodol into a pelvis which appeared beforehand to be healthy. It is probably unwise to introduce air, carbon dioxide or lipiodol into the uterus or tubes until several days after the end of menstruation, because of the risk of carrying particles of necrotic tissue or blood into the tubes or the peritoneal cavity, where they may set up an inflammatory process, nor are these procedures safe in the presence of an infected cervix or if there is any evidence of active infection, however attenuated, in the other pelvic organs. After the twenty-first day of the cycle it is possible that the endometrium may have overgrown the tubal ostia sufficiently to cause a number of false negative results. For these reasons it is probably wise to limit attempts to test the patency of the tubes to mid-cycle, say, between the twelfth and the twenty-first days. Furthermore, because of the possibility of trauma to closed tubes with resulting air or oil embolism, pressure should never be raised too high, probably not over 140 to 150 mm. of mercury. For the same reason curettage or endometrial biopsy should not precede or immediately follow upon a Rubin test or lipiodol instillation.

There are differences of opinion about therapy in this group. In some clinics salpingostomy is performed if the closure is at the fimbriated end; and if it is in the isthmus the diseased part of the tube is resected and the healthy remainder reimplanted into the uterus. Others implant an ovary into the uterine wall in such a way that as large a surface as possible projects into the uterine cavity in the hope that ovulation may take place directly into it. A few years ago the German Gynæcological Congress[3] reviewed all these methods and found that pregnancy was produced in an average of 10% of cases, of this number a fairly large proportion aborted or had ectopic gestations, and only about 5% or less carried their pregnancies to viability. In view of the poor results obtained we have not felt justified in subjecting our patients to an operation of such magnitude and risk. Others maintain that the passage of air, carbon dioxide, or lipiodol into closed tubes has in many cases the effect of restoring their patency. Nothing in our experience, however, seems to bear out this contention.

On the other hand we have had a certain measure of success in the treatment of closed tubes by the application of heat to the pelvis by means of Elliott's vaginal bag. Three of our cases have had living babies, and one of these

patients has had two and a third is pregnant for the second time. A fourth, after a very long series of treatments was found to have a partial opening of her tubes but she has not yet become pregnant, and a fifth both of whose tubes were completely occluded at the uterine end in November 1941 as the result of a foregoing acute salpingo-oöphoritis, after Elliott treatments twice a week for three months, now has the right tube freely open while the left remains closed. Our series is still very small but the number of apparent successes seems to

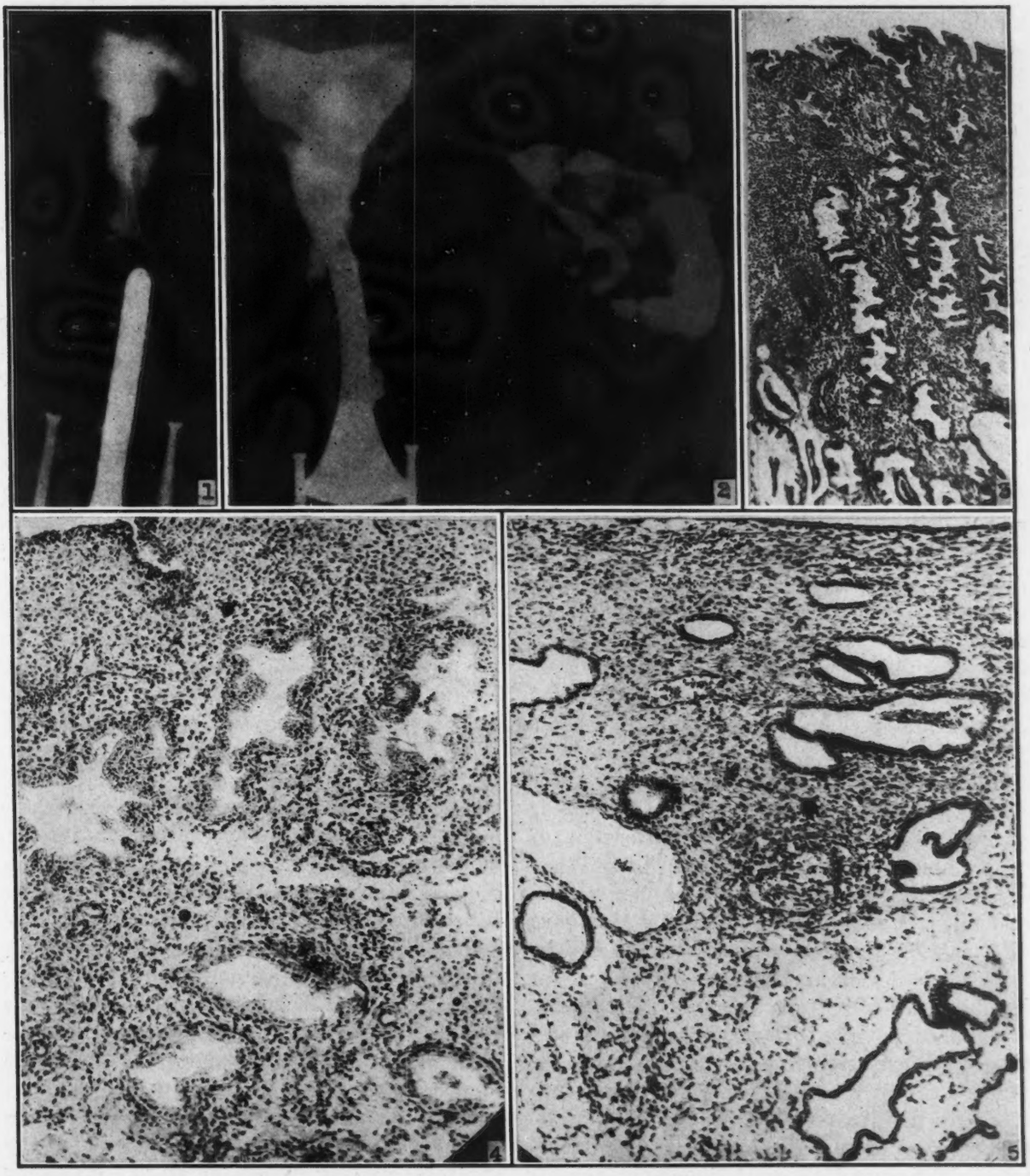

Fig. 1.—Both tubes closed. **Fig. 2.**—Same case, after three months of Elliott therapy; the right tube is open and the left is closed at the fimbriated end. **Fig. 3.**—Normal premenstrual or progravid endometrium obtained by biopsy within 24 hours of the onset of menstruation. **Fig. 4.**—Progravid endometrium showing a definite degree of the deficiency described in the text. Note dilatation of the glands, flattening of glandular epithelium, absence of secretion, small pyknotic nuclei of glandular cells and poor development of the compact layer. This tissue was obtained from a functionally sterile woman. Compare with Figs. 3 and 5. **Fig. 5.**—Progravid endometrium showing an advanced degree of the defect described in the text. Compare with Figs. 3 and 4.

be definitely encouraging. The course of treatment apparently must be a long one.

FUNCTIONALLY STERILE GROUP

The group of functionally sterile women is a large one; fully 50% of all cases presenting themselves to our clinic belong to it. It is this group of women in whom all ordinary methods of examination have failed to reveal any significant abnormalities that has until very recently eluded explanation and given rise to the great confusion in our ideas of the etiology of diminished fertility, because there were no known means of testing ovarian and uterine function in the living woman. Two tests have recently become available to us which have thrown a new light on the etiology of this group and made it possible to offer a rational explanation for functional sterility and to link it up with abortion and habitual abortion which are also aspects of lowered fertility.

At this point it is perhaps worth while to review briefly the physiology of reproduction in the female. The normal woman has a cycle approximately 26 to 30 days' long. Each cycle ends with menstruation and the onset of menstruation also marks the beginning of a new cycle, of which evidence can be obtained by endometrial biopsies during the bleeding phase. Menstruation consists essentially of the shedding off with hæmorrhage of the functional layer of the endometrium prepared for the embedding of a fertilized ovum but not utilized because fertilization did not occur. In each cycle, first of all, a Graäfian follicle develops in one ovary and as it does so it secretes the œstrogenic hormone which stimulates the proliferation of a new functional layer of endometrium. When it is mature the follicle ruptures or ovulates; and this occurs between the 12th and 16th days of the cycle. Next, the remnants of the follicle, the granulosa cells, are converted into the corpus luteum which in its turn secretes both œstrogen and its own specific hormone, progesterone, and these two hormones acting together transform the endometrium's new functional layer into the early decidua required for implantation of the fertilized ovum (Fig. 3). Now if implantation fails to occur the corpus luteum degenerates and the functional layer, having lost its nutritive stimulus, degenerates and is shed off as the menstrual flow.

This is what every normally fertile woman should do every month; but there are many women who menstruate regularly, whose pelvic organs are anatomically normal, whose tubes are patent and whose husband's reproductive capacity is undiminished and yet they do not become pregnant. This is the large group of functionally sterile women.

It is possible to attack the problem presented by these women in two ways. First, it is a simple matter to pass a tiny curette into the uterus without anæsthesia and remove a little endometrium for microscopic study. By this means we may follow the whole course of endometrial development from one end of the cycle to the other. But if we remove a tiny piece within a few hours before or after the onset of menstruation and find a fully developed and histologically normal premenstrual or progravid endometrium (the latter is the better term), this is all that is necessary, for we are justified in concluding that the patient has ovulated and formed a normally active corpus luteum, and if she has no defect elsewhere her reproductive function should be normal. In the group of functionally sterile women it is our experience that we do not find such an endometrium; but they all show varying degrees of deficiency in its development. In some cases it is quite well developed; in others the defect is greater; in yet others it is extreme, while in quite a few there is no evidence of any action of progesterone on the endometrium which has been acted upon by the œstrogenic hormone alone. In all the cases that show deficiency of progesterone action there are found dilated glands, empty of secretion, with cuboidal or flattened epithelial cells, whose nuclei are small and pyknotic and whose cytoplasm is compact and uniform in texture. The defect may be slight or it may be extreme, but we regularly find it as described, and we believe that women in whom it is found have ovulated and that these findings indicate a deficient output of progesterone by the corpus luteum. Those women whose biopsies show only the effect of œstrogen we believe have not ovulated at all. It is well known that a certain number of women do menstruate regularly without ovulation and that where this occurs continuously the patients are sterile. There are, then, varying degrees of ovarian deficiency ranging from the normal down to the complete failure of ovulation, all of which can be recognized by a single endometrial biopsy taken just before menstruation or within a few hours after it has begun (Figs. 3 and 4).

Some years ago Marrian[4] discovered in the urine of pregnant women an inert sterol to which he gave the name pregnanediol. Venning and Browne[5] showed that it is the form in which progesterone is excreted by the kidneys after it has been utilized, and Venning[6] in 1936, showed how it could be measured quantitatively in human urine. Since then a great many assays have been done in the whole normal cycle and from day to day in pregnancy and the limits of normal excretion are pretty well established.

Pregnanediol appears normally at mid-cycle very soon after ovulation and is excreted for from 10 to 12 days and disappears as a rule within 48 hours of menstruation. Thus it is only found in the luteal phase of a cycle and in amounts which vary rather widely. The limits of normal excretion appears to be between 35 and 60 mgm. (Fig. 5).

In patients who are functionally sterile the results of daily assays of complete 24-hour specimens of urine show a smaller amount of pregnanediol excreted for the usual number of days, *i.e.*, less than 35 mgm. in the normal 10 to 12 days; or, a shorter period of excretion, *e.g.*, 5 to 9 days or even less; or, sometimes it may be excreted irregularly, with intervening days showing none at all. The results of these assays agree accurately with those of the biopsies, and every grade of abnormality is found, from the normal to an absolute lack of pregnanediol, which is taken to indicate a failure of ovulation. The agreement between the results obtained by these two tests is so complete that for practical purposes it is unnecessary to do more than the endometrial biopsies. Pregnanediol assays confirm the conclusions arrived at from the biopsies and give a quantitative idea of the degree of failure of the corpus luteum's function (Figs. 6 and 7).

It has been our experience that some women who show a relatively minor deficiency in their corpus luteum's function by these two tests may and do become pregnant and may even go to term, but they nearly always threaten to abort and may carry the threat into effect. In others in whom the defect is often greater, abortion appears to become the rule as far as our studies go, and we have now studied over 100 cases of threatened, inevitable, and habitual abortion. A woman who shows this defect in one cycle or in one pregnancy has been shown to exhibit it over and over again in succeeding cycles and pregnancies. We believe that this is the fundamental cause of habitual abortion and that threatened and habitual abortion are different degrees of the same deficiency.

If the deficiency is great enough pregnancy becomes impossible and of course the women whose cycles are regularly anovulatory are also sterile. It therefore appears that abortion and habitual abortion are expressions of diminished fertility and that functional sterility is caused by severer grades of the same defect, namely, a

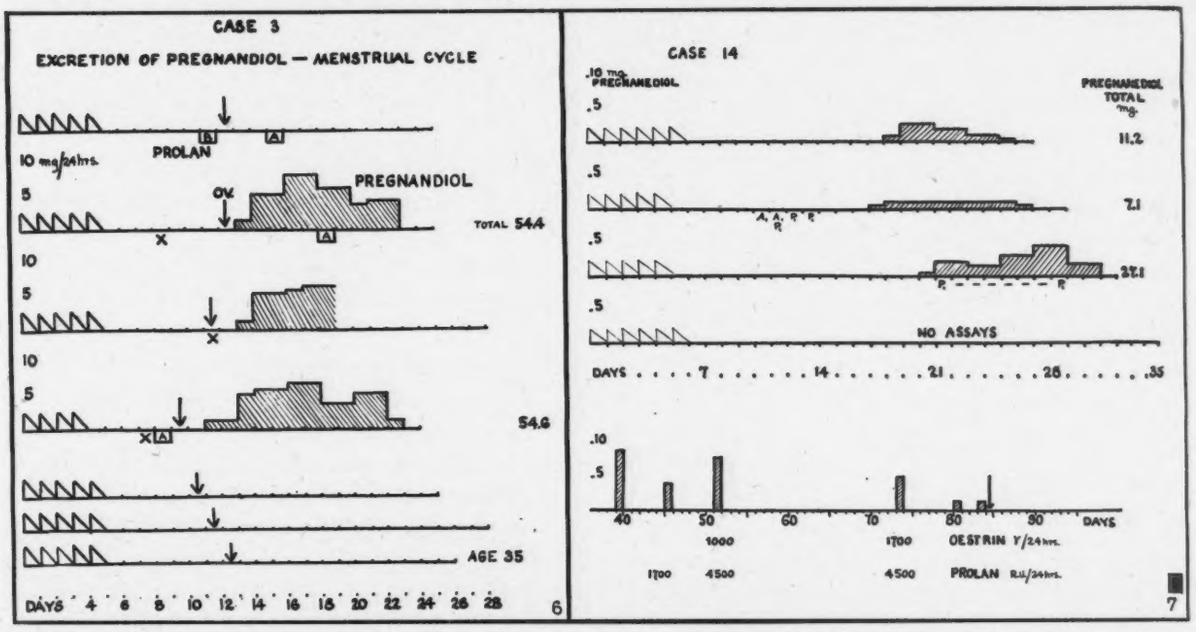

Fig. 6.—Excretion of pregnanediol in three normal menstrual cycles: in the second cycle the assays were not quite complete. **Fig. 7.**—Pregnanediol excretion in three defective cycles. Compare with Fig. 5.

deficiency in the mechanism of ovulation leading to the formation of an imperfect corpus luteum and having the complete absence of ovulation as its most extreme expression. It must not be supposed that the difference between threatened abortion, habitual abortion, and functional sterility is a simple quantitative difference in the degree of secretory activity of the corpus luteum in the large group of women concerned. Some women with well marked deficiencies do become pregnant and usually abort, while others in whom the defect is quantitatively less find it difficult or impossible to become pregnant. There is however in a general way a gradation of deficiency, and, in general, the milder grades are not incompatible with pregnancy, while the severer ones appear to be related to habitual abortion and functional sterility.

Therapy in this group is largely a matter for the future. Various authors have believed that they have produced ovulation in women who do not ovulate spontaneously but there is little agreement on this point and it is safe to say that the artificial production of ovulation in the human being has yet to be proved conclusively. Until this is shown to be possible the outlook for these women is poor; fortunately they do not form a large group.

But the women in whom the corpus luteum is defective do make up a large group, we believe, fully 50% of the cases in our clinic. To date, all we can say with certainty is that the chorionic gonadotrophic hormone, or luteinizing hormone found in pregnancy urine, if given to a woman whose corpus luteum produces too little progesterone, will cause it to secrete more normally and often quite normally, while, if the corpus luteum phase is short it can be prolonged by the same means. After such therapy we have seen pregnancy occur in the next cycle in four patients, two of whom aborted, while a third went to term and a fourth has become pregnant very recently. Though we have been able to improve or prolong luteal function in a number of others only these four have as yet become pregnant, so that we would not care to say whether they represent successful therapy or coincidence. These apparent results of therapy however do seem to suggest a line which future investigation might follow.

It is perhaps not out of place to make a plea for extreme caution in the evaluation of any phenomena which may follow upon any given therapy and so may appear to the patient and even to her physician to be its direct results. The arm of coincidence is long and many apparent successes must be attributed to it; especially is this true of hormone and vitamin therapy much of which is still in its experimental stage. Moreover, it is important to define sterility more strictly than often is done. Many of the best writers on the subject insist that no woman should be described as sterile or treated for sterility who has not been trying unsuccessfully to become pregnant for at least two years. The inclusion of women who have been married for only a few months in lists of "successfully treated" cases can only give rise to disappointment in others who attempt to use our "therapy" in *bona fide* sterility, and so add to the confusion which already exists in the literature of this subject.

SUMMARY

A working classification of infertility in human beings divides all cases into four groups; the first includes all male defects; the second includes all women in whom embryological defects bar the possibility of pregnancy; the third is made up of all those with acquired tubal blocks; and the fourth comprises the large group of functional sterility.

Endometrial biopsies and pregnanediol assays have shown that functional sterility is due either to a functionally deficient corpus luteum or to complete failure of ovulation. When either of these defects occurs in adult women it appears probable that it is permanent. It is possible to show that threatened and inevitable abortion, habitual abortion, and functional sterility are all linked up with deficiency in the corpus luteum and seem to represent different degrees of failure in its function.

Newer studies of the male spermatogenic function have thrown light on the etiology and frequency of male infertility; therapy in this group is as yet largely in the empirical stage. The embryologically defective group does not lend itself to therapy. The secretory activity of the corpus luteum can be increased or prolonged, but as yet it is too early to make any claims for successful treatment of functional sterility.

Since this paper was written a fourth woman who had received a series of Elliott treatments in the hope of overcoming a tubal block has become pregnant and has been operated upon for an ectopic gestation. If our ideas of the

etiology of ectopic pregnancy are correct this accident should not be unexpected after such treatment.

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RÉSUMÉ

La classification de la stérilité peut s'établir en 4 groupes: le premier comprend toutes les anomalies de l'homme; le second a trait aux troubles embryologiques structuraux de la femme qui s'opposent à la grossesse; le troisième englobe toutes les causes d'imperméabilité tubaire, et le quatrième est représenté par le contingent important des fonctionnelles ou endocriniennes. Les biopsies de la muqueuse utérine et les dosages du prégnanédiol ont démontré que la stérilité dite fonctionnelle est causée par un déficit hormonal du corps jaune ou par l'absence complète d'ovulation. On commence à mieux connaître les causes de la stérilité mâle. Les troubles dûs à des défauts structuraux d'origine embryologique sont peu accessibles à la thérapeutique. La sécrétion du corps jaune peut être stimulée et prolongée; des travaux en cours donneront bientôt les conclusions de ces recherches. Certaines imperméabilités tubaires peuvent être vaincues par la chaleur locale prolongée, enfin, en connaît mieux la procédure opératoire qui rétablira la lumière de la trompe et empêchera les grossesses ectopiques. JEAN SAUCIER

FRACTURES OF THE METACARPALS TREATED BY A NEW METHOD

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INTEREST in this subject was developed because of the necessity of returning men to full duty as soon as possible, and of delayed return of function in methods previously used.

The reasons for the delayed return of function, loss of time from work, or even permanent loss of function, are directly associated with fixation of the joints of the fingers for a variable period of time. Methods of fixation have in the past been numerous, and, due to excessive immobilization, have resulted in the common disability of intractable stiffness of the fingers.[1] These fractures have been treated by the use of plaster splints and traction by means of pins such as Kirschner wire, Glover's needle or miniature pair of ice tongs calipers[3] through the pulp space or by adhesive tape strapping and fixation to a banjo splint.[6]

The frequent practice of binding all the fingers over a roll of bandage in the palm or strapping fingers and hand to a flat splint is to court disaster. Another method described[2] is fixation by a plaster splint in which the finger is held in flexion for the required time. Another method is reduction and plaster to forearm, wrist and finger involved.[5] These methods of fixation which involve immobilization of the fingers or traction through the phalangeal joints result in a long period being required to produce full movement in the fingers, whether by active movements alone or associated with physiotherapy. Another point associated with poor results is that many consider the treatment of these fractures a minor procedure. The visiting surgeon is not called and they are left to inexperienced house surgeons.[4]

Fractures of the metacarpals are caused by direct violence, such as blows of the fist or sudden falls, when the back of the hand strikes against the ground, or by the blow from an object or machine. Indirect violence of a torsional type will produce them as well. Anchorage of the metacarpals to each other by the interosseous muscles and fascia minimizes displacement and tends to control mobility of the fragments to some extent. Only fractures of the 2nd to 5th metacarpals are herein discussed, since the method of treatment to be described is obviously not applicable to the thumbs.

The commonest fractures are said to be those of the 2nd and 5th metacarpals. In this series of 16 cases, the 5th was involved in 10, the 4th in 2, the 2nd in 2 and the 3rd in 3. Only one bone was broken in each case, except one in which both the 3rd and 5th were involved. There were 4 fractures of the neck, 3 oblique and one transverse. Of 8 fractures of the shaft, 4 were transverse, 2 oblique and 2 spiral. Five fractures involved the base, the 5th metacarpal being the most commonly involved. Two of these involved the radial side with slight downward displacement of the ulnar side. There were three transverse comminuted fractures, one definitely involving the joint.

The operating room set-up is quite simple, comprising the usual local anæsthetic and draping facilities, and in addition, a Kirschner wire size 0.045, a Kirschner wire-drill and key, a pair of scissors, wire cutters, cork, sulfathiazole emulsion and plaster bandages. All cases have been reduced in the x-ray screen room with the patient under a preoperative sedative. The

usual preparation of the hand and wrist is done with iodine and alcohol with suitable draping. Two per cent novocaine local anæsthetic is used and is poured into a medicine glass under the surgeon's vision in order that no mistakes are possible. The injection is made at the point of introduction of the wire, to either side of the metacarpals to be used and into the fracture site. After a period of waiting, fractures of the shaft and base are reduced by steady pull on fingers and counter-pull at the elbow by an assistant or mechanical fixation, accompanied by manipulation by the surgeon. In cases of fractured neck, there is usually a dorsal angulation with the head displaced toward the palm. In order to tighten the collateral ligaments of the metacarpo-phalangeal joint it is necessary to flex the fingers and push them slightly dorsally, which will correct the deformity.[1]

After reduction of the fracture, a Kirschner wire, size 0.045, is introduced through the junction of the neck and head of the first two metacarpals. In fractures of the neck the wire is introduced through the heads. The wire is cut one-half inch from the skin and a small sulfathiazole emulsion dressing applied around the wire and a half cork applied over this. A plaster slab is applied to the dorsum, being carried to

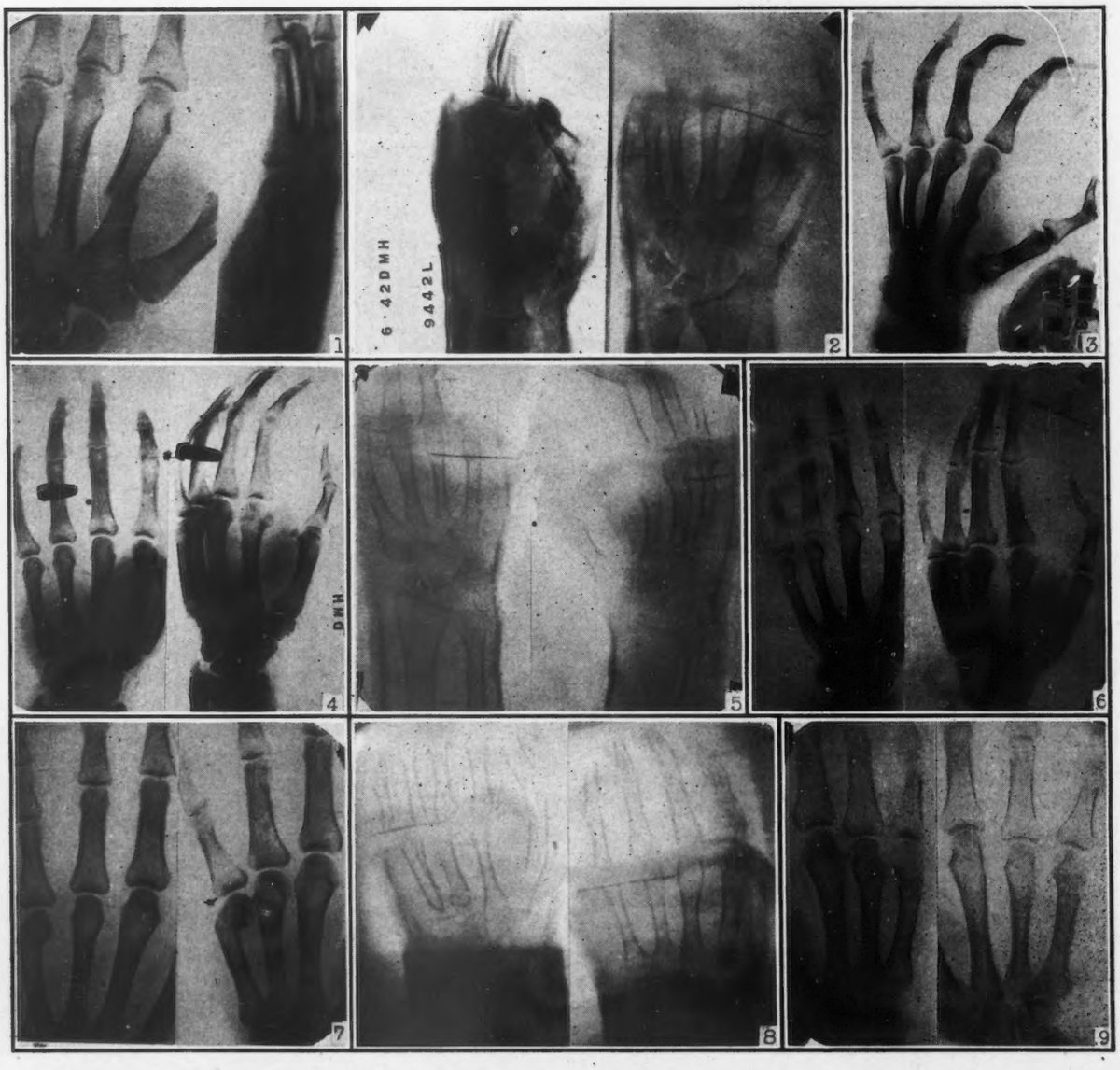

Fig. 1. (Case 1).—Fractures of the shaft of the 2nd metacarpal. **Fig. 2.** (Case 1).—Fractures of the shaft of the 2nd metacarpal after reduction and wiring. **Fig. 3.** (Case 1).—Fractures of the shaft of the 2nd metacarpal six weeks after injury. **Fig. 4.** (Case 2).—Fracture base 5th metacarpal involving joint. **Fig. 5.** (Case 2).—Fracture base 5th metacarpal after reduction and wiring. **Fig. 6.** (Case 2).—Fracture base 5th metacarpal 6 weeks after injury. **Fig. 7.** (Case 3).—Fracture of the neck of the 5th metacarpal. **Fig. 8.** (Case 3).—Fracture of the neck of the 5th metacarpal after reduction and wiring. **Fig. 9.** (Case 3).—Fracture of the neck of the 5th metacarpal 6 weeks after injury.

the knuckles and around the cork. A circular plaster is applied then as in treatment of a Colles' fracture. In fractures of either the 5th or 4th metacarpals the wire is carried through both of them. The wire must always transfix one sound bone. Two fixed points are attained and the fractured distal end is suspended at the third point. In the case of a fractured 5th metacarpal the 4th metacarpal and cork are the two fixed points; in a fracture of the 4th metacarpal the two fixed points are the 5th metacarpal and the cork. In fractures of the 2nd or 3rd metacarpals similar treatment is used, but the wire is first introduced through the 2nd into the 3rd. In our series, one fractured 4th was treated by wiring, 5, 4 and 3, a fractured 3rd by wiring 2, 3 and 4, and a fractured 3rd and 5th by wiring 5, 4, and 3 metacarpals.

By this method of treatment full movement of the fingers can be commenced at once and is encouraged. The fracture does not slip, because of the adequate fixation. For the first two or three days the hand is better held high until the swelling has gone. The patient can usually be returned to his unit in four days to a week and can resume classes and do many jobs requiring no heavy exertion. The wire is removed at the end of three weeks and a new cast applied for a further three weeks, after which the patient is returned to full duty. If the wire is left long enough to re-apply the drill, removal is much more easily done. X-ray films are taken pre- and post-operatively and at three and six weeks.

The results can be judged by two criteria; firstly function, and, secondly, the cosmetic appearance. In all cases the function has been found perfect and movements of the fingers have usually been full in a week and onwards. In some cases the movements of the fingers are full after two or three days. This form of fixation is not painful and every patient has been comfortable from the time of reduction. So far as cosmetic results are concerned, there were four cases in which a lump was present on the dorsal surface at the end of six weeks which did not interfere in any way and which would undoubtedly be much smaller six months later. The period of fixation of six weeks may be unnecessarily long, but due to the strenuous activity which is resumed after removal of the cast, this period was thought advisable. The factor of some fractures of the base going into the joint does not seem to be of any significance, and the results were not impaired by this. The most important aim in treatment is the early restoration of perfect function and this was attained in all cases.

SUMMARY

1. A report is presented based on 16 cases of fractured metacarpals, one of which involved two bones, treated by a new method.

2. The number of fractures of each metacarpal, their position and type is shown.

3. Previous methods of treatment are briefly mentioned.

4. The operating room set-up and method of reduction and fixation are described.

I am indebted to Commander Richey L. Waugh,[7] United States Marine Hospital, Boston, Mass., for his demonstration of this method. I am also indebted to Lieut. Col. L. H. McKim, officer in charge of surgery, Debert Military Hospital, for his interest and help and to Captain G. A. Holland, surgical specialist, Debert Military Hospital, for permission to report five cases treated by him.

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RÉSUMÉ

Autrefois les fractures des métacarpiens étaient traitées par l'immobilisation. Aujourd'hui, on applique à ces petits os la méthode de Kirschner. Après réduction de la fracture les extrémités fracturées sont réunies par du fil métallique de dimension 0.045; le fil est enlevé après trois semaines. La mobilisation précoce est encouragée et aisément exécutée. Par cette méthode la réduction est parfaite, on gagne du temps et l'esthétique de la main est assurée. JEAN SAUCIER

"One outstanding advantage in occupational therapy as compared with other methods of treatment is that results are obtained without the patients having their attention focussed upon the damaged limb or the injured joint. Their attention is wholly taken up by their occupation, and they commonly say, 'You know, I quite forgot this arm'. Most treatments tend to draw the patients' attention to the site of the injury until, in some cases, such attention becomes morbid, and it is found that some patients become burdened with fixation hysteria in addition to their injuries. Such a result from a course of therapy is certainly not desirable."—Andrew Shepherd, M.B., Ch.B., D.P.M., medical superintendent, Barnsley Hall E.M.S. Hospital.—*J. Roy. Inst. Pub. Health & Hyg.*, 1943, **6**: 64.

A CASE OF CARCINOMA OF THE NASO-PHARYNX

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MALIGNANT tumours of the naso-pharynx may be carcinomas, endotheliomas or sarcomas, the latter two being extremely rare. Subdivisions of the former are described as follows, *viz.*, squamous, scirrhous, baso-cellular, anaplastic, sphino-cellular, adenocarcinoma, transitional cell and lympho-epithelioma. The large majority of tumours in this location are of the anaplastic or transitional cell type.

Pathology. — Lympho-epithelioma and transitional cell carcinoma show little difference in their development and histological characters, depending upon the amount of lymphocytic infiltration. Both types seem to take origin from the transitional epithelium and lymphoid tissues of the naso-pharynx and throat. The base of the tongue, tonsil, naso-pharynx and œsophagus are the areas in which transitional cell epithelium is normally found. Transitional cell carcinoma is formed of masses of small cells with a large nucleus occupying almost the entire cell, which cells tend to grow in cords and strands. Variations in the staining qualities of the cells are common. Growth in the beginning is small and located beneath the surface epithelium, making early diagnosis extremely difficult. Metastasis into various viscera is rare.

Symptomatology. — Naso-pharyngeal neoplasms cause little or no symptoms referable to the nose and throat. There is however, a peculiar syndrome exhibited by these patients, which has been noted and reported upon in recent years. It has been reported by New[1] that in the early stages of the disease there is a painless induration and enlargement of the cervical lymph nodes; there is also fullness in the ears or tinnitus aurium due to impingement of the tumour on the mouth of the Eustachian tube; there is also fifth nerve pain located in the temple, forehead, eye, cheek, teeth or vertex. Later on other cranial nerves become involved, chiefly the third, fourth and sixth and sometimes the seventh. Occasionally the jugular foramen syndrome, or the syndrome of Jackson, is reported. Symptoms may arise in the tongue, palate, pharynx, larynx and trapezius muscles, through the ninth, tenth, eleventh and twelfth cranial nerves. The growth usually takes place extra-cranially but intra-cranial extension is not uncommon. As the tumour grows nasal blockage, purulent discharge, odour and hæmorrhage develop and, later still, diplopia, blindness, proptosis, aphonia, dysphagia and hoarseness may be present.

CASE REPORT

Miss T., 54 years of age, was referred to me on January 10, 1942, suffering from "sinus infection". Her history was that following an acute head cold her left nostril became blocked and this had lasted for one week, with pain on the left side of the nose and in the left temple, fullness in the left ear and blurred vision in the left eye. There was a thick, creamy, tenacious discharge mixed with blood.

Examination. — A white, obese, edentulous female who was constantly sniffing. Her tonsils had been removed. Her oropharynx was normal. Nose: her right nostril had good airway; the left nostril had a deviation of the septum, partially obscuring the middle turbinate. After cocainization a reddish mass of tissue was revealed, somewhat polypoidal in character and occupying the upper part of the nostril between the septum and the middle turbinate, partially obscuring the latter. Some mucopus was present. Posterior rhinoscopy showed a pale, rounded swelling about the size of a Queen olive, completely filling this area. Transillumination revealed frontals clear; right antrum clear; left antrum cloudy. Left antrum was then irrigated—return flow clear. A fragment of tissue was removed from the left nostril for biopsy. Bleeding was not very profuse. The report on the tissue removed was as follows (Theo. R. Waugh):

"Sections showed a malignant growth of cords and strands of immature epithelial cells. These are quite large polyhedral elements, but in places are smaller and suggest origin from the overlying pseudo-stratified cylindrical epithelium. The growth is present in only the largest piece of tissue. Diagnosis: carcinoma."

The patient was sent for x-rays of the skull and sinuses on January 17, and the x-ray report was as follows (E. M. Crawford):

"There is moderate opacity of the ethmoidal sinuses on the left side, a deviation of the nasal septum toward the left, and a distinct thickening of the mucous membrane at the base of the left maxillary sinus. The configuration of this latter suggests a mucosal cyst under tension in the anterior portion of the sinus. There is evidence of an old root fragment or a foreign body at the alveolar margin of the right maxilla in the molar area. There is an enlargement of the sella turcica with erosion of the clinoid processes and destruction of the roof of the sphenoid sinuses. This latter is most likely due to new growth, probably associated with the pituitary gland. There is some destruction of the cell walls of the ethmoidal sinuses, but this appears to involve largely the posterior group of cells and in one of the films there is an irregular notching of the superior orbital plate" (see illustration).

The patient was admitted to hospital on January 18, 1942. She was taken to the operating room on January 24, where the nostrils and pharynx were cocainized to facilitate examination of the naso-pharynx. There was then revealed a white, hard, globular swelling in the posterior nares, which appeared to be coming through the left choana. The origin of the mass could be traced to the posterior and lateral surfaces of the left middle turbinate.

The fact that the growth had penetrated into the skull and had involved not only the body of the sphenoid but also the clinoids and the left optic tract,

warranted a grave prognosis, and if any attempt were to be made at removal (to a greater or lesser extent) this would necessitate a radical type of operative procedure. For these two reasons therefore, namely, the prognosis and the extent of the involvement by the growth, Moure's[2] lateral rhinotomy was performed on February 3. Prior to operation the patient's blood count was: red blood cells 4,450,000; white blood cells 8,500; Hgb. 82%. On exposure, a growth was seen filling the vault and lateral surfaces of the nostril and involving the middle and superior turbinals, extending downwards and backwards through the left choana. That part of the growth which occupied the nostril

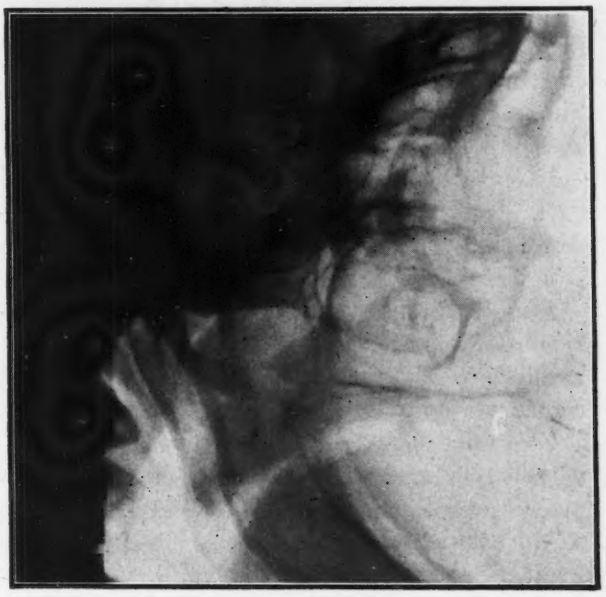

Fig. 1.—Lateral view of paranasal sinuses. The posterior clinoid processes are almost completely destroyed. Some destruction of the anterior clinoid processes; roof of the sphenoid sinuses completely destroyed.

was first removed and then the other portion filling the naso-pharynx. Bleeding was profuse, but at no time dangerous. The cautery was applied to the lateral wall of the nose and the naso-pharynx. One-inch gauze impregnated with an ointment composed of sulfanilamide, sulfathiazole and sulfapyridine with alphamel as a base was tightly packed into the left choana, and nostril. The wound was closed by interrupted dermal sutures. The outer dressings were changed daily. The dermal sutures were removed on the 5th day and the packing removed in seven days. Even though the packing had remained such a long time in the nostril, there were no odour or untoward symptoms.

The type of anæsthetic used was as follows: Preliminary medication, (H) morphine gr. ¼, with atropine 1/150. Anæsthetic agents used, pentothal sodium 1.9 grams, intravenously. Ten c.c. of pentothal were given intravenously at 9.45 a.m. and the patient became unconscious; 7 c.c. more were necessary before the throat relaxed sufficiently for the introduction of the endotracheal tube (28 Fr. with balloon). Oxygen was given endotracheally throughout. Pentothal was added intravenously in 1 to 2 c.c. injections as the patient showed lightening of anæsthesia. Seven hundred and fifty c.c. of saline were run in intravenously by drip method during operation. Pulse 120 throughout. Colour good. No shock. No nausea. Anæsthetic began at 9.45 a.m. Operation began at 10 a.m. Operation finished at 11.30 a.m."

Fragments of the growth were sent for biopsy and were reported on as follows (T.R.W.):

"Sections were prepared from all of the fragments. The soft tissue all showed penetration by a cancerous growth. A report on the bony tissue will be made after decalcification. Diagnosis: carcinoma."

Roentgen therapy was begun on February 5, 1942, given by Dr. E. M. Crawford at the Homœopathic Hospital of Montreal, as follows: Two portals right and left pharyngeal and lateral skull areas 10 x 15 cm. each; right side of head and neck 1,980 r; left side of head and neck 2,060 r. The following factors were used. 200 Kv. 15 Ma., 50 cm. distance. Filters ½ mm. Cu., 3 mm. Al. These treatments were given on alternate ports daily from February 5, 1942 until March 3, 1942.

On March 11, 1942, x-rays were taken of the skull, reported as follows (E.M.C.):

"The superior and middle turbinate bones and all the ethmoidal sinuses on the left side have been removed. The bone in the floor of the sphenoidal sinus is somewhat more dense when these films are compared with those of January 19, 1942."

Prior to discharge a fragment of tissue was taken from the left nostril, with the following report (T.R.W.):

"Sections show polypoid masses of tissue which, for the most part, are necrotic. Here and there one sees a surface epithelium in folds of stratified squamous cells. Beneath this the fibrous tissue is infiltrated with a cellular exudate, mostly lymphocytes and eosinophiles. In the necrotic areas there are some cell clusters, suggestive of malignant cells. However, were it not known from previous biopsies that malignancy were present, it would be impossible, because of the necrosis, to establish such a diagnosis from this material. A.S. Polypoid masses of necrotic tissue showing inflammatory changes."

Patient was discharged to the Montreal Convalescent Hospital on March 16, whence she reported once a month. The blindness in the left eye has remained unchanged, but there have been no symptoms as yet of further involvement or recurrence.

Examination was made by Dr. S. O. McMurtry, ophthalmologist to the hospital, on March 3, 1943. He reported atrophy of the optic nerve on that side. The patient has been working for the past eight months.

On October 19 an x-ray was taken of her skull. The report is as follows (E.M.C.):

"Comparing these films with the previous examination, there is no evidence of additional destruction of bone. The bone in the region of the sella turcica has the appearance of new bone formation and, as far as we can determine in these films, there is no evidence of progression of the new growth."

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RÉSUMÉ

Les tumeurs malignes les plus fréquentes du naso-pharynx sont les carcinômes à type cellulaire anaplastique ou de transition. Les cellules carcinomateuses prennent naissance aux dépens de l'épithélium de transition et du tissu lymphoide du naso-pharynx et de la gorge. Au début la tumeur est très petite et occupe la région immédiatement sous-jacente à la surface épithéliale. Les métastases sont rares. Les signes initiaux sont l'induration indolore et l'hypertrophie des ganglions lymphatique du cou. Plus tard, apparaissent les bourdonnements d'oreilles, puis les atteintes des III, IV et VI et parfois du VII. Il arrive d'observer le syndrôme de Jackson. Enfin, l'envahissement peut amener, avec la cécité, le blocage des fosses nasales, l'aphonie et la dysphagie. Un cas est rapporté pour illustrer la symptômatologie et l'anatomie pathologique de la question.

JEAN SAUCIER

RADIATION TREATMENT OF CANCER OF THE CERVIX*

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THE treatment of cancer of the cervix has entered a third phase.

The first or surgical phase reached its zenith with the development of the widespread meticulous removal of the pelvic organs as typified by the Wertheim operation. Bonney,[2] performing more than 500 of these operations, still has an operative death rate of 13%. Finding it practical to operate on 63% of his cases he obtained a 40% 5-year survival, or an absolute 5-year survival of 25% of all cases seen. Since even Bonney describes the procedure as the most difficult of all regularly performed operations, most surgeons content themselves with the usual pan-hysterectomy, not clearly distinguishing it from the truly radical Wertheim operation, the latter being seldom, if ever, performed in this country. The pan-hysterectomy is still comparatively common, unfortunately, and gives inferior results which must not be confused with those obtainable by Wertheim's operation.

The second or radium phase of treatment developed as a natural sequence to the unsatisfactory surgical experience. Amply warranted by the results obtained, radium therapy received practically universal acceptance for well over 10 years. Having a minor immediate mortality, with a brief morbidity, the 5-year survival rate was at least as satisfactory as, if not better than, that found following the truly radical hysterectomy. Despite the many different radium techniques developed, the results were surprisingly uniform, from 20 to 28% of the patients treated living for 5 years. Of the very early cases 70% remained cured, while in the surgically operable group — the early and borderline cases — all clinics reported a practically uniform 40% 5-year survival.

The actual amount of irradiation delivered into the cervix, co-ordinated with the results, has been carefully worked out by Healy,[7] of the Memorial Hospital. He definitely demonstrated that cases apparently cured after 5 or more years, had received an overdose rather than an underdose of radiation. No cervix receiving less than 6 S.E.D. (threshold skin erythema doses, as defined at the Memorial Hospital) had been cured. While best results had been obtained in those patients receiving from 6 to 8 S.E.D. throughout their cervices, no additional benefit had been derived by exceeding this amount. Healy also demonstrated that standard methods of radium application gave 15 to 25 S.E.D. to all parts of the cervix, but that it was impossible to deliver doses greater than 1 S.E.D. to the more distant portions of the parametrium by radium alone.[5] He concluded that radium applied in any of several different modes gave a satisfactory prospect for cure, provided the disease was strictly confined to the cervix, but could not be considered efficient treatment in that large group of cases in which the parametrium was involved.

Isodose curves showing the amount of radiation reaching all areas of the pelvis by various methods of radium application, supporting this conclusion, have been published by Lucas.[8]

The third phase in the treatment of cancer of the cervix consists in the addition of adequate external irradiation by roentgen therapy to the use of radium and came about through realization that control of the lymphatic involvement of the parametrium was the most important factor in treatment.

External roentgen irradiation used as a supplement to intracavitary radium by Healy since 1922, in an endeavour to control this lymphatic involvement, had not increased the number of 5-year survivals, although it was believed that this x-radiation was of benefit in making the patients more comfortable and that they lived longer and perhaps even died more easily than would have otherwise been the case. With the development of satisfactory means for the measurement of roentgen dosage, it was realized that the x-ray techniques then in use were inadequate, delivering only 1 or at the most 2 S.E.D. to the deep-seated tumour areas.

Improvement in the results with cervical cancer required, then, the development of a technique whereby cancericidal doses of 6 to 8 S.E.D. might be delivered throughout the whole pelvis. This presented problems entirely different from those of the radium treatment. The cervix is a non-vital structure and any caustic destruction resulting from local areas of overtreatment might be acceptable in an attempt to deliver lethal tumour doses to adjacent parts. Irradiation of the gland-bearing areas of the

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pelvis by x-ray, however, requires a method whereby sufficient treatment to cause the disappearance of the neoplasm can be administered from without and yet not result in serious damage to the large volume of vitally important normal structures necessarily included.

Encouragement in the feasibility of this procedure emanated from Paris where Regaud and Coutard[4] at the Curie Foundation combined increasingly large doses of x-ray therapy with the radium treatments.

Healy[6] has been one of the earliest workers to adopt this intensive form of treatment. In collaboration with Arneson and the physical laboratories of the Memorial Hospital, a technique of combined x-ray and radium therapy has been evolved, whereby it is possible to deliver a minimum of 5 to 8 S.E.D. throughout the entire pelvis.[1] We have since the installation of deep therapy facilities attempted to treat carcinoma of the cervix along the general lines adopted by Healy, with the introduction of but minor modifications.

Roentgen radiation prior to radium treatment is preferred for several reasons, of which probably the most important involves a cardinal principle of the Coutard technique which keeps the daily dose sufficiently small to leave the tumour bed unaltered. Should daily doses of 500 to 800r be given, the supporting connective tissue structures undergo changes which affect the nutrition of the tumour and result in the development of radio-resistant characteristics which lessen the possibility of subsequent cure. If, on the other hand, the daily dose is kept small, *i.e.*, in the neighbourhood of 150 to 200r, the connective tissues remain unaltered. By the repetition of this dose over periods of from 30 to 50 days Coutard has shown that cure may frequently be obtained in even the more fully differentiated adult type of tumours formerly considered highly radio-resistant and known to be incurable by any other technique of external irradiation. The daily radium dosage would appear to be too high to thus properly institute treatment, inasmuch as the 6,000 or so mgm.-hours ordinarily given in from 3 to 6 days represent approximately 6,500r to the cervical area and 1,600r to the mid-portions of the parametria.

Good clinical evidence may be adduced that x-radiation following radium is of distinctly less value than when used to initiate the treatment. The diminution in size and at times even complete disappearance of advanced bulky growths with x-ray treatment makes for ease and accuracy in radium application. Sepsis following the introduction of radium through a badly infected cervix is much less likely to occur after the streptococci and other virulent organisms have been destroyed by the preliminary x-radiation. Devitalization of the growth also enables the cervix to be dilated with considerably more impunity and less risk of cancer dissemination.

Preliminary x-radiation should not be omitted in the early Stage I cases, in which every effort should be extended to ensure that a cure be not allowed to escape. Halfway measures should not be tolerated in these, the most favourable cases. The argument that x-radiation might be omitted in Stage I patients has been advanced, but the realization that 30% of these die of cancer demands our best attention for, not discrimination against, the early case.

TECHNIQUE

The technique of treatment is as follows, though some individualization is required, particularly in regard to the radium applications.

Six portals are employed, 2 anterior, 2 posterior, each 10 x 15 cm. in size, and 2 lateral, usually 15 x 15 cm. These encircle the pelvis in a band extending from the level of the middle of the symphysis pubis to the top of the iliac crests. On the anterior and posterior surfaces the fields are separated by about 2 cm. in the mid-line and as treatment is given at right angles to the skin being directed primarily to the parametrium, the beams do not converge toward the mid-line, sparing the bladder and rectum doses in excess of that delivered to the cervix. Occasionally 2 gluteal portals are added. Two portals receive treatment each day. Each portal usually receives 150r at first, increased within a week or so to 200r. The target of the x-ray tube is at 80 cm. distance from the skin; the machine operating at 200 k.v. and 20 to 25 MA. The filter used is 1 mm. of copper and 4 mm. of aluminum. The average treatment time is about 20 minutes for each field. Anterior portals are used one day, the 2 posterior the next and after about 10 days the 2 lateral fields are started. Treatment continues for 6 days a week until each portal receives 2,000r for a total dose of 12,000r. These values are measured in air and would represent 16,000r if measured to include the backscatter on the skin as in Coutard's reports. A total of 60 or

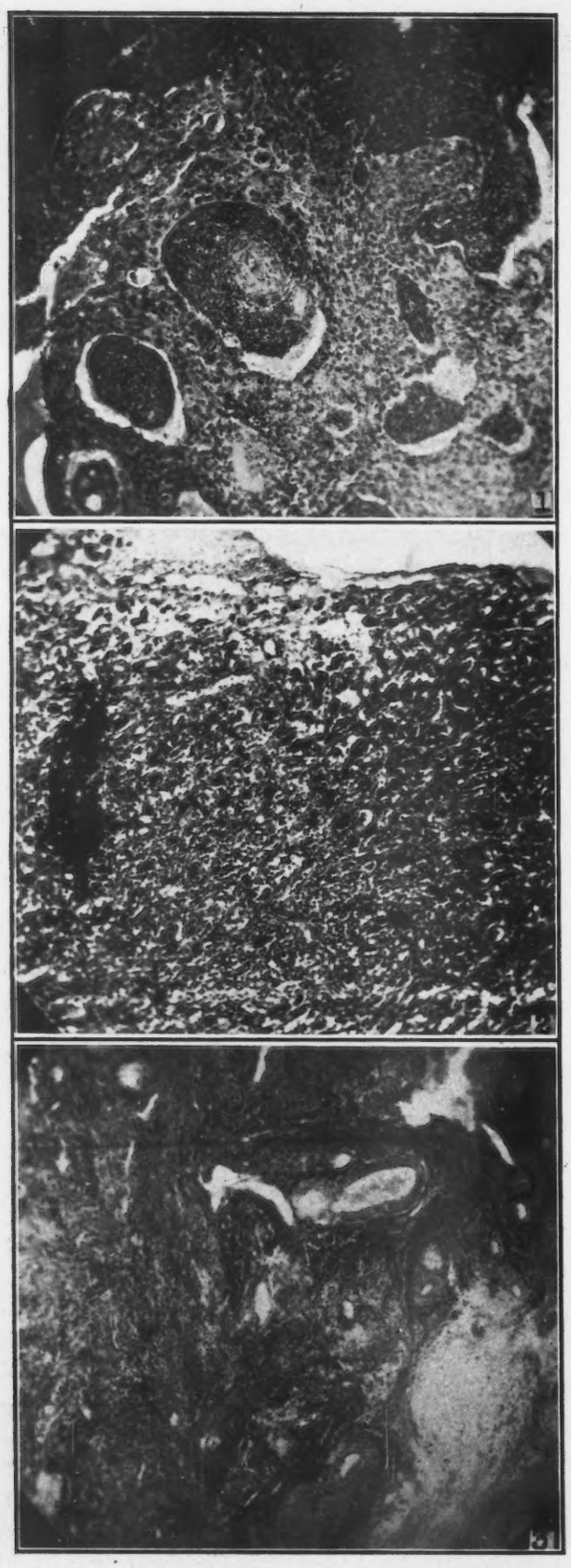


Fig. 1.—Biopsy from cervix before treatment. Squamous cell carcinoma grade 4. Fig. 2.—One week after beginning of x-ray therapy. Total dose 2,500r. Fig. 3.—The same cervix immediately after the conclusion of the x-radiation, 12,000r having been given. No carcinomatous cells could be found.

more treatments occupies a period of 35 to 40 days.

Intramuscular liver extract two or three times weekly is given to aid in combating radiation sickness and secondary anæmia for which frequent blood counts are made.

By utilizing the two lateral portals the parametrial structures actually receive more radiation than does the cervix.

EFFECTS

The effect of external roentgen irradiation on deep-seated tumours is readily studied in these patients. In a few days definite clinical and histological improvement is demonstrable, while bleeding usually ceases and the discharge becomes less abundant. Microscopically the cancer cells become larger and more acidophilic and often show a tendency toward squamous metaplasia. The tissues become infiltrated with plasma cells and there is a definite diminution in any existing inflammatory process (Fig. 2).

In the second week these changes become more evident. The cancer cells are by now very swollen and vacuolated and the nuclei show signs of degeneration, many cells disappearing entirely. The inflammatory process changes from acute to chronic. There is a heavy lymphocytic infiltration. Many blood vessels show a beginning arteritis; some are thrombosed.

The third week usually reveals only a few isolated degenerate cancer cells, the tissues rapidly becoming fibrotic.

The fifth week, usually marking the termination of the external irradiation, often reveals a healed and apparently normal cervix. Microscopically many cervices now show an entire absence of tumour, obliterated blood vessels, diminished lymphocytic infiltration and a marked degree of fibrosis (Fig. 3).

These histological changes were followed in 26 of the early cases. In 5 no remaining cancer cells could be found at the conclusion of the x-ray treatment. While the other 21 still had a few scattered identifiable cancer cells, a very impressive alteration in the microscopic picture was invariably present. It is likely that more would have shown microscopic healing had the final biopsy been postponed for another week or so to allow the full development of the x-radiation effect.

RADIUM TREATMENT

Radium treatment is commenced in hospital one or two days after completion of the x-ray therapy. Agreeing with Healy that the shorter the period of intra-uterine application and vaginal packing, the better, 100 mgm. of radium, heavily filtered by 1 mm. of platinum, in a gum-elastic applicator (Gaillard Sound) is placed in the uterine cavity and cervical canal. Intravenous sodium pentothal is a particularly suitable anæsthetic. The application is left for 30 hours, constituting a dose of 3,000 mgm.-hours. The bladder and bowel are displaced by careful vaginal packing, the packing also holding the applicator in position. The bladder is kept empty by regular catheterization, unless the patient does so herself by voiding. A second application of radium, also under anæsthesia, is made a day or two later to the vault of the vagina, being directed against the cervix and toward each lateral fornix. The total dose of radium ranges from 5,500 to 6,000 mgm.-hours.

This completes the period of active treatment. It is surprising how little this affects these patients. Seldom is there any nausea and rarely indeed does a patient vomit. Gone is the severe vomiting formerly so often associated with x-ray therapy. Skin blisters requiring dressing for a few days will occur in a few patients; more frequently there is only a moderate degree of tanning and superficial desquamation. Bladder and bowel symptoms are usually of minor degree, responding readily to appropriate treatment. Examination of the patients at rather short intervals is carried out during and following the termination of treatment, not only to observe the progress of the case but also to prevent possible closure of the vagina by result of the vaginitis induced.

It is the degree of reaction in the essential pelvic viscera which limits the extent of the x-ray treatment, not the condition of the skin. This is well illustrated by the fact that all available portals of entry are seldom utilized and serious skin reactions are avoided. The 80 cm. distance between skin and x-ray target, while a rather costly technique requiring four times the treatment time of an exposure at 40 cm., results in a considerably greater depth dosage and is a very essential part of the treatment. Supervoltage equipment of 400, 700 and even 1,000 k.v. is now being advocated by several clinics, always striving for better penetration and depth dosage without concurrent skin damage. It is true that a somewhat shorter and perhaps biologically more efficacious roentgen wave length may be obtained from supervoltage equipment. If, however, one is willing to bear the expense of prolonged treatment time and use sufficient filtration and long skin target distances on modern heavy milliamperage 200 k.v. therapy machines, one can obtain practically the entire improvement in technical quality of the tumour radiation that supervoltage equipment offers over the commonly used 200 k.v. method of treatment.

We do not feel that treatment at 50 cm. S.T.D. and light copper or aluminum filtration is in any sense adequate therapy. Recently, detachable vaginal cones have permitted of direct intravaginal application of the x-rays. Adequate radium therapy renders this procedure unnecessary when it is directed against the cervix. When directed to the parametrium the angulation of the intravaginal x-ray beam must be very closely supervised and it is as yet a moot point as to whether or not sufficient benefit to influence the results can be thus accomplished without destructive damage to essential structures.

Our series comprises 135 cases of cancer of the cervix and represents 10% of all patients with cancer treated in the clinic and 19% of the cancer found in women.

The average age of the cervical cancer patients was 51, with a mean of 50 and extremes of 22 and 82 years.

TABLE I.

AGE-DISTRIBUTION OF 135 CASES OF CANCER OF THE CERVIX

Age	*No. of Cases*
20-29	3
30-39	26
40-49	33
50-59	38
60-69	23
70-79	11
80 plus years	1

The marital state is represented by 109 married, 21 widowed, 3 divorced and 2 single, who admitted illicit relations, one having had a miscarriage. It is stated[3] that the liability to cancer of the cervix is greater at every age amongst married and widowed than amongst single women and that this is especially true between the ages of 45 to 65, when it is about 7 times greater.

In this series 119 patients had borne children; 3 others had had miscarriages; 13 stated they had never been pregnant. The entire 135 consulted their physicians with respect to definite symptoms referable to the disease. No single case of cancer was discovered by routine pelvic examination. Such procedures are of very real value is discovering and correcting abnormalities possibly predisposing to cancer, but in our experience have been of no value in the detection of early cancer of the cervix.

Abnormal bleeding was the first symptom in 71%; leukorrhœal discharge in 16%; pain in 9% and malaise and weakness the first complaint in 4%. Excluding the recurrent cases the average patient did not report for treatment until 8 months after the first symptom.

TABLE II.

LAPSE OF TIME AFTER FIRST SYMPTOM BEFORE TREATMENT*

Less than 1 month	11%
1-3 months	24%
3-6 months	22%
6-12 months	30%
1-2 years	9%
2 plus years	4%

*Primary cases only.

The patients were largely, but not entirely, responsible for this loss of time; 41% were referred for treatment within 1 week of their first medical consultation, but in 21%, 3 or more months of valuable time was lost.

TABLE III.

LAPSE OF TIME BETWEEN FIRST MEDICAL CONSULTATION AND INSTITUTION OF TREATMENT FOR CANCER*

Less than 1 week	41%
1-4 weeks	22%
1-3 months	16%
3-6 months	10%
6-9 months	5%
9-12 months	4%
1-2 years	2%

*Primary cases only.

Nine had had a previous supravaginal hysterectomy, two having been operated upon within the preceding four months. These had unrecognized cancer at the time of operation and must be classified as errors in diagnosis. The remaining 7 are true cases of cancer developing in the cervical stump. Not having been previously treated for cancer, these 9 stump cases are considered as primary carcinomas in this paper and are included in the statistical analysis.

Squamous cell carcinoma was found in 131 patients, while the histological examination revealed an adenocarcinoma arising from the cervical canal in 4.

The recommended combination of protracted high voltage x-ray therapy followed by radium has now been carried to completion in 108 cases. Two patients, both moderately advanced, received severe bladder injuries resulting in their ultimate deaths 3 and 5 years later. While an autopsy was performed on only one, neither showed any evidence of residual growth. They must be considered as treatment mortalities. No other case has presented serious ill effect. The treatment mortality has accordingly been 2%. Minor degrees of cystitis and proctitis have occurred not infrequently, but have not failed to respond to adequate care. No pathological fractures have resulted from the treatment.

Seventy-seven patients were treated three or more years ago. While the number is small, this same situation has permitted a considerable degree of personal attention, and the results obtained appear to be sufficiently significant to warrant reporting. Two were postoperative cases referred for prophylactic therapy and are excluded from the analysis. Eight were recurrent following treatment of various types given elsewhere. While some of these recurrent cases were definitely improved, all but 1 died within a year. None lived 3 years. They illustrate the old dictum that most cancers not cured on first attempt are unlikely to be subsequently cured. All but 2 of the recurrent cases presented themselves within a few months of the installation of the high voltage equipment, and the problem of the case recurrent when we first see her no longer assumes much importance in our work. The results obtained in these recurrent cases have no influence upon the prognosis which one can offer a new patient presenting herself for treatment for the first time.

RESULTS

There are thus 67 cases of primary carcinoma of the cervix for analysis. Of these 29 are alive and seemingly free from cancer at the end of 3 years; they constitute a 43% 3-year "absolute" survival rate; 14 patients living and well of 35 seen 5 years previously represent a 40% 5-year "absolute" survival free from evidence of cancer.

To determine the effectiveness of the x-ray and radium treatment, however, one must exclude from analysis certain cases with complicating factors. This has been done with 12 for

the following reasons: 5 refused the treatment advised; 4 had x-ray therapy but were too advanced for the radium treatment; 3 others were too advanced even for x-ray therapy and were accepted only for palliation, dying within a few days of admission. Some of these may reflect upon our ability to "sell" the chosen method of treatment, but again they do not influence the prognosis which one can offer the patient honestly seeking to be cured. Subtracting the above leaves, then, 55 net cases treated 3 or more years ago: 29, or 53%, of these survived 3 or more years apparently free from cancer; 2 died of intercurrent disease after 3 years, but before 5, and without evidence of cancer. They are excluded from the 5-year group of which there are then 27 net cases. Fourteen, or 52%, are alive and seemingly well at the end of the 5-year period. The net cases include all patients suffering from previously untreated cancer of the cervix considered as having sufficient chance of survival to warrant the complete treatment, no matter how slight that chance might be. Advanced Stage III and IV cases are included except when the patients were obviously within a few days of death or suffering from known distant metastases. An approximate 50% net 5-year survival rate indicates, we believe, the prognosis which one can offer under these circumstances.

Inasmuch as widely different methods of reporting are used by various authors it is dangerous to make comparisons when cases are excluded from analysis and it is for this reason that we report the 40% 5-year "absolute" survival embracing every primary case of cancer of the cervix seen, whether treated or not. It would seem to give a somewhat more accurate picture, if one deleted only the patients who refused the treatment advised and those who subsequently died of intercurrent disease and included every case willing to take whatever treatment was prescribed. This then includes every primary cervical cancer patient willing to be treated, even though possibly too advanced even for palliative x-ray only, and under these circumstances 29 of 62, or 47%, survived free from evidence of cancer for 3 years and 14 of 29, or 48%, for 5 years. No case living at the end of 3 years has as yet died of cancer and for this method of treatment the 3-year survival rate can seemingly be taken as a very close approximation to that which will prevail at 5 years. The survivals for various stages of the disease are shown in Table IV.

The results of this treatment are superior to those of our earlier cases treated by radium alone or in combination with post-radium x-ray therapy. We believe they indicate the necessity for a combination of *adequate* external roentgen therapy and radium. The greatly increased cost of longer skin target distances and heavy filtration is well justified. Supervoltage therapy is accomplishing similar results, but shows as yet no definite superiority over the results that may be obtained by the therapist willing to sacrifice expense in order to get the very best out of his 200 k.v. equipment.

Table IV.

Survivals According to Stage of Disease*

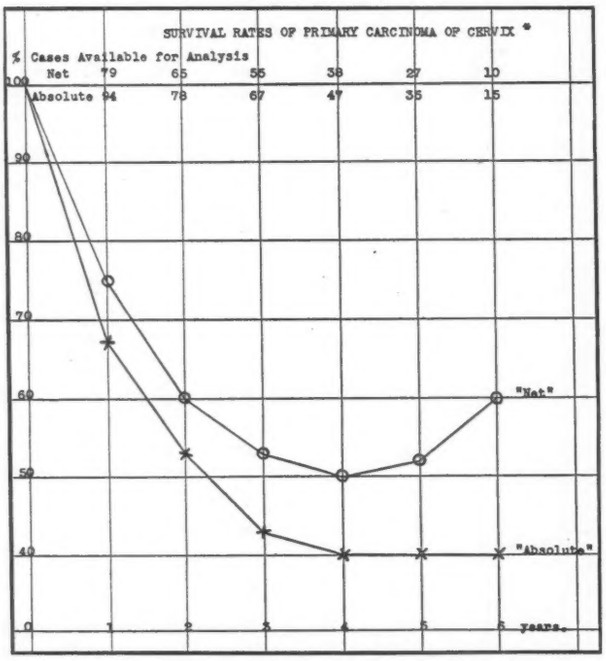
	3 years			*5 years*		
Stage	*No. of cases*	*Alive*	*%*	*No. of cases*	*Alive*	*%*
I	10	8	(80)	5	4	(80)
II	22	15	68	13	8	(62)
III	20	5	25	9	2	(22)
IV	10	1	(10)	2	0	(0)
All stages	62	29	46.8	29	14	48

*Includes all primary cases willing to be treated even though such treatment may not have been carried to completion or even commenced.
Rates based on fewer than 15 cases are bracketed.
Staging of Disease in accordance with League of Nations' standards.

There would appear to be a natural reticence in referring unproved cases for consultation. This is well illustrated by the number of patients in this series who have had a biopsy and pathological diagnosis on admission. On theoretical grounds we deprecate biopsying these tumours a week or more prior to the institution of treatment. The diagnosis can be made clinically and with certainty by one familiar with the disease in the vast majority of patients who only consult their physician about well established bleeding. This diagnosis is subsequently verified by biopsy, but only after the treatment has been well established, when we believe that it can be performed with more impunity.

The small suspicious area causing no symptoms and found only on routine pelvic examination is of course an entirely different condition and unquestionably warrants taking a careful and properly performed biopsy. Not infre-

quently, too, cases have been curetted even though the cervix was obviously cancerous. In one or two instances this curettage failed to make the diagnosis, no section having been taken from the cervix. To quote Richards and Cosbie,[9] "One of the greatest contributions which the medical profession can make towards this end would be to refer such cases as are being sent for treatment with as little preliminary interference as possible, except possibly



* Excludes postoperative cases, but includes those occurring in the cervical stump following upon a previous supravaginal hysterectomy.

a biopsy. Partial operations are worse than none at all and seriously jeopardize the prospect of successful radiotherapy. Since the latter clearly offers the patient more hope of cure than any other method at present available, it should be carried out under as favourable conditions as possible."

CONCLUSIONS

1. Carcinoma of the cervix should be treated by radiotherapeutic methods without previous surgical intervention and with as little manipulative trauma as possible.

2. Roentgen irradiation must be adequate and given without thought of expense.

3. This can be achieved with modern 200 k.v. equipment, but only by the use of long skin target distances and heavy filtration.

4. The roentgen irradiation is followed by radium treatment.

5. The expense to the patient is comparable to that of any major surgical procedure.

6. The results in all but the most hopelessly advanced cases are encouraging and superior to earlier methods of treatment.

7. Patients living and apparently free from cancer at the end of 3 years may reasonably be expected to remain well for at least a 5-year period.

8. Fifty per cent of patients treated as described are living normal lives 5 years later.

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THE PROBLEM OF VARICOSE DISEASE

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IT is not expected that an article on varicose veins will arouse much enthusiasm. It is not a very exciting disease to anyone, perhaps even less to those who have had much to do with it. To one who has had to spend much time in a varicose vein clinic in the past it brings to mind a depressing picture—fat, unsightly, unenticing legs; fatter records, with page after page of entries reaching back pretty steadily through months and years, but with chronological gaps when the patient was temporarily cured, or perhaps "fed up"; chronic suffering of body and of mind; and a large element of hopelessness and futility. When confronted with one of those records, with its interminable list of dates, one felt like crying out with the psalmist

of old, "How long, O Lord!" Recurrence, even after radical operation, was the rule. One will recall many a leg which years before had been split from stem to stern, presenting recurrence of a most diffuse and massive sort. The conclusion of it all is that the problem in the treatment of varicose disease is not how to get rid of the varices, but how to keep them from coming back; not how to heal an ulcer, but how to keep it healed. And yet one can state that varicose disease is curable; and, moreover, that the cure is specific, just as specific as is the cure of indirect inguinal hernia; and that, just as in the case of hernia, there is *only one way* to cure it.

The trouble has been that treatment usually has been inadequate, for two reasons: lack of knowledge and lack of means. Regarding the latter, in most general hospitals it is a physical impossibility to give adequate treatment to all who need it. It is not an exciting disease, and it is not easy to impress an admitting officer with the importance of curing it. (During the time I was in charge of the P.V.D. clinic at the Montreal General Hospital I kept a waiting list of the vein cases requiring operation, but for every one I was able to do, including those not admitted but done in O.P.D., at least a dozen new names were added.) One had largely to be content to fiddle about with injections and pastes, that is with purely palliative treatment, but good, mind you, of its kind.

There still is a lack of understanding of the problem of varicose disease. Men have been referred from recruiting offices with the advice to go and get a few injections and come back again. For this reason a brief review of the subject may be permitted.

THE ANATOMY OF VARICES

The simplest and most informative definition is that presented in Homan's Textbook of Surgery. A varicose vein is a superficial vein which has lost the ability to conduct the blood upward against gravity. The reversal of flow is what matters. That is what makes it vicious. If the victim of varicose disease could spend the rest of his life standing on his head or even going about on all fours, he need not worry about having no valves in his veins. In other words it is an incompetent vein. It is on the demonstration of incompetency that the diagnosis hinges.

The familial incidence, and the not infrequent appearance of the disease in adolescents suggest that the fundamental cause is to be found in a congenital weakness of the veins and their valves. But, whatever the underlying cause, the direct, initiating factor is back pressure, transmitted from the deep to the superficial system through an *incompetent communicating vein.* It is not only the back pressure due to gravity that is concerned. More important is the transmission of every increase in intra-abdominal pressure, producing a water-hammer effect akin to the effect of an arteriovenous fistula. By actual measurement it can be shown that, with the abdominal muscles in action as in coughing and straining, the tension in a varix in the leg is brought to a degree much greater than that accounted for by the hydrostatic pressure alone. This is obvious, and it underlines the importance to be attached to a certain sign of incompetency, namely the cough impulse or thrill felt over the involved vein. Even with an intact valvular system the veins of the lower extremity are working against gravity, but they are spared the additional shocks which the unprotected, incompetent, superficial vein has to stand.

In the vast majority of cases the incompetent communicating vein, and the only one, is the internal saphenous vein itself, a vein peculiar to the human animal; and it is the internal saphenous system which is involved, the varices showing usually the typical antero-medial distribution, though they may follow an antero-lateral or a postero-lateral course when either the lateral femoral or the superficial pudendal branch, as the case may be, becomes the main channel. The lesser saphenous system may also be involved through an anastomotic branch from the internal saphenous. But, whatever the geographical distribution of the varices, the important thing is—and this is the fundamental of fundamentals underlying the adequate treatment of varicose disease—that in varicose disease of the internal saphenous system there is a definite anatomical defect, and this defect is at the junction of the superficial with the deep vein, at the level of the deep fascia. This defect must be dealt with if it is hoped to cure the disease. In many cases the varices appear only below the knee, but there is no use attacking only what one sees. One might as well amputate the distal half of an indirect inguinal hernial sac. So long as any stump of the internal

saphenous vein remains the essential lesion is still present, the forces are still at work, the back pressure, the water-hammer effect, all the makings of a new varicose system. The analogy with indirect inguinal hernia is obvious.

There are possible sites other than the fossa ovalis for an incompetent communicating vein. Next in guilt is the lesser saphenous, though an uncommon offender compared to its big brother. Rarely there is an incompetent communicator other than the lesser saphenous below the knee, along the medial margin of the tibia, more rarely in the lower third of the thigh out of Hunter's canal, and of extreme rarity elsewhere, for example, from the gluteal veins. But, wherever the incompetent communicating vein is, this important truth still holds: the fundamental lesion is at the level of the deep fascia.

The prerequisite to adequate treatment, then, is to make an accurate anatomical diagnosis, to determine the site or sites of the incompetent communicating veins. Fortunately, this is easy, as in probably more than 90% of cases the internal saphenous alone is involved. When the superficial veins are emptied by elevation, pressure over the upper end of the saphenous controls all the varices when the leg is subsequently brought to a dependent position. Then, when the pressure is released, the filling from above is observed and the picture is clear. If pressure at the fossa ovalis does not control the varicose system completely one feels for a dilated lesser saphenous with the knee slightly bent to relax the skin and fascia, and confirms its involvement in the same way as with the long vein. Sometimes it alone is involved, but more often the internal saphenous is involved as well. Rarely must one look elsewhere for additional leaks. When they are present the site is usually obvious, and the defect in the deep fascia can often be felt with the finger tip. A very significant sign is the cough impulse or thrill, felt over the internal saphenous vein. It is well not to diagnose varicose disease if this is not positive. Not only is it incontrovertible evidence of incompetency, but it is useful in estimating the degree of the disease and the prognosis regarding its future development.

SURGICAL TREATMENT

As previously stated, in the vast majority of cases the internal saphenous alone is involved, and the specific treatment, and the only treatment which has any hope of permanency, is what is generally termed high ligation, better termed high resection, because it is more than a simple ligation. To be successful it must be adequate, the vein must be dissected up to its junction with the femoral, and ligated there, at the level of the deep fascia, above every superficial tributary, leaving no incompetent stump to become the starting point for a new varicose system.

A scar in the femoral region does not necessarily indicate an adequate operation, unless the proper technique is followed. The only way to be sure is first of all to make an adequate incision, and a high incision, in the fold of the groin; to isolate the internal saphenous vein and immediately divide it, so that the free proximal stump can be retracted, and dissected upwards; then divide each superficial tributary as it is developed, until the sapheno-femoral junction is definitely identified. The ligature is placed at this point, flush with the femoral vein, and the stump excised. This is the technique described by Homans. It has been our custom to close the deep fascia by a mattress suture in the fossa ovalis as an added refinement. Local infiltration of 1% novocaine makes a very satisfactory anæsthetic, especially if, after incising the skin, and before incising the superficial fascia, an injection of 10 to 15 c.c. is placed under it under tension.

In advanced cases at least it is helpful to combine with this high resection a resection of about an inch of the internal saphenous at about the level of the knee, especially if retrograde injections are being made. This having been done, the communicating vein, or veins, having been eradicated, the coup de grace is administered by sclerosing injections of the involved vein, either retrograde at the time of operation, or subsequently at leisure.

One can supplement this operation in any way one likes, but whatever else is done this *must* be done. It is the one thing needful. It does not matter how brutal one is in dealing with the actual varices, if one falls short of this one thing needful the cause is lost. That was the fault with the treatment of those legs presenting huge scars running from top to bottom. When the saphenous opening was explored there was invariably found an incompetent stump of the internal saphenous vein feeding huge tributaries, the last state of the leg being worse than the first. It is not a matter of doing the radical thing, but rather of doing the rational, physio-

logical thing, of attacking, not the branches, but the root.

What about the deep veins? There is a bogey which should be laid to rest and not permitted to becloud the issue. One should cease worrying about them or about any involved test for demonstrating their efficiency, because it is quite beside the point. There is only one question to decide. Is there or is there not a reversed flow in the superficial veins? Let us suppose the deep veins are not all they should be. They are only being further handicapped by a reversal of flow in the superficial veins. There is only one indication for treatment of the superficial veins, and that is the demonstration of reversed flow, and there is no contraindication as far as the veins are concerned. One cannot do anything but good by cutting it off. There is just one caution to be observed, and that is that not all dilated superficial veins are due to varicose disease. When one is confronted with a leg presenting dilated veins, and chronic induration and œdema, where one cannot satisfactorily demonstrate a reversed flow, then one is probably dealing with a post-phlebitic state, not varicose disease; and there will usually be a history of milk leg or postoperative or post-infectious deep phlebitis.

VARICOSE DISEASE IN THE ARMY

Varicose disease is a problem in the Army and in the recruiting office. It is the cause of considerable disability, both real and imagined. The legs are a most important part of the soldier's body. Varicose veins of themselves are not really disabling though they usually seem to cause some discomfort, not proportional to their size. We have all seen old fellows with enormous veins and no subjective symptoms and with normal skin and subcutaneous tissue. But it is essentially a progressive lesion, and it is hard to predict its rate of progress. If the histories are to be believed it is apt to progress rather rapidly under conditions of Army training. Moreover it is subject to complications which may be disabling.

The most serious complications are the chronic inflammatory lesions, eczema, lymphangitis, ulcer. Why do some get ulcer and some not? Does it depend upon accidental trauma? There is probably a certain fortuitous element in the genesis of such a lesion, but there is more to it than that. The ground for a chronic lesion must first be prepared. The problem of varicose ulcer is akin to that of peptic ulcer, that is, one of chronicity, not so much how it starts, as why it does not heal.

Some varicosed legs have normal skin and subcutaneous tissue, while in others there is obviously a nutritional disturbance. In the former the circulatory defect is fully compensated for. In the latter compensation seems to have broken down. Compensation is largely a function of the deep veins in draining the varices as they fill and helping to protect the venules and capillaries beyond from the effect of back pressure. When compensation fails the back pressure reaches to the venules and capillaries and there is dilation and stasis. With capillary stasis there is, concomitantly, lymph stasis. The tissue economy has been hit, and the stage is set for a chronic lesion. The superficial tissues are now vulnerable. Some trauma and infection occurs and there is an area of lymphangitis which goes on to ulceration. The stasis favours fibrosis, fibrosis increases the lymphatic stasis, and the vicious circle is in full operation.

The important thing is to treat varicose disease before decompensation supervenes, although it can still be relatively cured even after complicating lesions are present.

In considering the effect of varicose disease on the physical status of the recruit, much emphasis has been placed on the size and site of the dilated veins. More attention, if not all attention, could be given to the functional effect of the disease. It is not the vulnerable position of the varix which is important, but rather the vulnerable state of the tissues where the back pressure has broken down their defences. A varix in a vulnerable spot such as the subcutaneous surface of the tibia may be ruptured, but in a well compensated case it will heal with ordinary care, and with purely local support. This, of course, is a relative statement and should be qualified. Varices below the knee, especially in the lower third of the leg, are of more significance than any above the knee. There the back pressure is most severely felt. One does not get serious complications above the knee, except it be a spreading superficial phlebitis. However, the statement still holds that it is the functional effect of the disease which chiefly matters as regards the probability of serious complications.

The important point, then, on which to classify a case is the presence or absence of a

going chronic lesion, or of signs of decompensation indicative of nutritional changes in skin and subcutaneous tissue. The questions should be: first, is there an established chronic lesion; second, are there signs of decompensation such as pigmentation and œdema? Those in the first group can be ruled out as candidates for enlistment. The second group, with treatment, can qualify for all but the highest category. All others, with uncomplicated varicose disease, and otherwise normal, can qualify for the highest category, independent of the size and geography of their varices.

Every case, however, is a proper candidate for treatment. In every case there is a potentially progressive lesion which is best dealt with early. The only way to be sure that the treatment is adequate is to enlist them, and treat them where they will be submitted to standard treatment. It would be well to have a standard treatment laid down, because the answer to the problem is not everywhere understood.

If this practice were followed it might well save a lot of subsequent trouble both during and after the war. As it is, men have been accepted after indifferent and temporary treatment. They have had a few injections, their veins are temporarily thrombosed; but they give trouble later on, and then they tend to shy away from any treatment. Men have been accepted whose varices were so situated as to permit them to enter the highest category. They have subsequently complained of their legs, but have refused adequate treatment. Would it not be better for the Army to accept them all as men with curable defects and provide correct treatment, rather than to accept them after incorrect treatment, or to accept them in the hope they will not get worse? The treatment could well be undertaken in special centres where it would be properly standardized.

SUMMARY

Varicose disease is curable, or can be greatly improved, but in spite of the many articles which have appeared in recent years it would seem that there is yet widespread failure to understand the basic problem and how to deal with it. There persists a great deal of haphazard treatment.

There is only one legitimate method of radical treatment, namely high resection of the incompetent vein or veins, with ligation at the level of the deep fascia, above every superficial tributary. To this is added sclerosing injections. It may be supplemented by more widespread resections of the varices, but any treatment which leaves an incompetent communicating vein between the deep and superficial systems is incomplete.

Injection treatment alone is palliative and temporary, and may harm by prejudicing against further adequate treatment.

The only indication necessary for dealing with the superficial veins is the satisfactory demonstration of a reversed flow. The cough impulse, especially when it can be detected in the lower third of the thigh or below the knee, is good evidence of abnormal back pressure, and gives some measurement of the degree to which the veins in the leg are exposed to abnormal pressures.

The technique of high resection is described.

The problem of varicose veins in the Army is briefly touched upon. While not usually a disabling disease, especially in the young adult, it is a progressive disease, and subject to serious complications. It is suggested that the best way to deal with it would be to enlist all cases except where there is already an established chronic lesion, and undertake their treatment in centres where is can be controlled and standardized.

RÉSUMÉ

Les varices sont curables, ou tout au moins, il est possible de les améliorer grandement. Pour obtenir de bons résultats il n'y a qu'une seule méthode: la résection haute de la veine ou des veines insuffisantes, avec ligature au niveau du fascia profond, au dessus de toutes les veinules tributaires superficielles. A ce procédé on peut encore ajouter les injections sclérosantes. L'essentiel consiste à ne pas laisser de veines insuffisantes persister entre les réseaux veineux superficiels et profonds. La seule injection sclérosante ne donne que des résultats temporaires et n'est qu'un palliatif. La grande indication est la stase veineuse qui peut être mise en évidence, surtout aux jambes, par l'épreuve de la toux. La technique de la résection est décrite en détail. Les varices ne devraient pas être un motif d'invalidité pour les recrues de l'armée; les candidats porteurs de varices devraient être groupés, puis traités.

JEAN SAUCIER

If every driver would reduce his average speed by 10 miles an hour he would get about 6,300 extra miles out of his tires, according to a major rubber company.

Tire wear on curves is 1,200% greater than on the straightaway.

DIABETES MELLITUS ASSOCIATED WITH ADDISON'S DISEASE*

By Captain Nelson W. Nix, R.C.A.M.C.

THE reported cases of diabetes mellitus associated with Addison's disease are extremely rare. A careful review of the literature has revealed only eight unequivocal reports, none of which occurred in Canadian literature.[1-8] In addition to these, Unverricht[9] is said to have poorly described a case of diabetes and tuberculosis which developed Addison's disease. This report was not available for review. Allan[10] referred to two cases seen at the Mayo Clinic among 115 cases of Addison's disease and over 3,000 diabetics, but no confirmatory description could be found. Rogoff[11] reported a case in which Addison's disease developed after bilateral denervation of the adrenals in an attempt to cure diabetes mellitus.

In the majority of cases diabetes developed first. In the following instance it is difficult to determine accurately the sequence of events owing to lack of information.

CASE REPORT

A.C.P., a thirty-nine year old Canadian warrant officer, attended sick parade on December 30, 1942, complaining of epigastric distress and marked weakness. He was admitted to military hospital the same day for investigation of the gastro-intestinal system.

History of present illness.—The onset of fatigue and weakness was noticed about 18 months previously, and was present intermittently during the ensuing period. He had been taking iron, vitamin concentrates, and liver preparations prescribed by his family physician for several months, with little improvement. A few days prior to admission the general weakness became excessive, accompanied by epigastric distress described as "bringing up wind" and a sour taste in the throat and mouth, coming on shortly after each meal and persisting over an hour. There was no vomiting or diarrhœa. The patient was convinced he had a tapeworm, but over a period of some months had failed to discover segments.

Past history.—He had had the ordinary diseases of childhood, with good recovery. Tapeworm infestation during youth.

Family history.—Parents, sister, two brothers, wife and two children alive and well. History of tuberculosis, cancer, heart, kidney, or mental disease was denied. Upon questioning his wife several days later it was learned that one of his brothers had been taking insulin up to 45 units daily since 1934; and that the patient's 17-year old son had died of uræmia one year ago.

Personal history.—In civil life he had been a machinist.

Functional enquiry.—He claimed that he had lost twenty pounds in weight during the previous six months, although his appetite had been unusually good until the past few weeks. Other enquiry was negative. His wife later added the information that he had been "always thirsty" before the present illness developed six or eight weeks ago.

Physical examination.—Temperature 97.2° F. (oral); pulse 72, respirations 18. His net weight was 105 lbs.; height 66 inches. Blood pressure 88/50. An apathetic man of average development, but with evident recent loss of weight. Pallor and yellow tinting of the skin was noticed; hair partly brown, the remainder turning grey; the pupils were round, equal, and reacted to light and to accommodation. The ears, nose, and throat were not remarkable; complete upper and lower dentures. The thyroid showed no enlargement. The chest was normally resonant and no adventitious sounds were detected. The heart sounds were distant, but otherwise normal. The abdomen was scaphoid, thin-walled, and moved freely with respirations. No masses or tenderness were found. The liver and spleen were not enlarged. The hernial orifices were normal. The genitalia, back, extremities, superficial and deep reflexes were normal. Urinalysis showed the presence of four-plus sugar (on the basis of one to five). The test for acetone was inadvertently omitted on first analysis. Hgb. was 58%; erythrocytes 4,260,000; leucocytes 6,950; neutrophiles 47%; lymphocytes 44%; monocytes 2%; basophiles 3%; eosinophiles 4%. The blood Kahn test was negative.

Subsequently a glucose-tolerance test was done which revealed a mild diabetic curve:

Fasting	181.8 mgm. %	; urine:	one-plus sugar
Half hour	180.0 "	"	no urine obtainable
One hour	205.0 "	"	no urine obtainable
Two hours ...	250.0 "	"	urine: two-plus sugar
Three hours ..	232.2 "	"	no urine obtainable
Four hours ..	181.4 "	"	no urine obtainable

A slight trace of acetone was found in the urine. The temperature was never above normal except on the first afternoon, when it was 99.4° F. On two mornings the temperature could not be read, being below 95° F. It was felt that the diagnosis of diabetes mellitus was justified, but that there was in addition some underlying debilitating disease. The abdomen was again carefully examined and no masses or lymphadenopathy were discovered. The chest was x-rayed and the lungs were reported clear of parenchymal disease.

On the sixth morning the patient was noticeably weaker, mentally duller, and restless. The tongue was dry and coated, the skin dry and cold, but not itching. He was reluctant to take either food or drink. Acetone was noticed on the breath for the first time. The blood pressure was 70/40. The blood-sugar was 250 mgm. %; the urine showed four-plus sugar with a trace of acetone by Rothera's test and also by the ferric chloride test. Twenty units of unmodified insulin were given immediately and a tentative regimen of ten units before each meal begun with twenty units of protamine zinc each morning. An observation diet of approximately 1,200 calories was used, consisting of protein 98, fat 49, carbohydrates 95. There was considerable objective improvement but the patient stated he would die the following day.

The following morning he said he felt better but was still troubled with insomnia, which had annoyed him for some weeks. The fasting urine revealed two-plus sugar and a trace of acetone. Breakfast was eaten reluctantly and followed by emesis. At noon he was given 10 units insulin. Shortly afterwards he became weak and drowsy. By 1230 hours he was unconscious, cold, and his pulse barely palpable. Blood examination was done immediately and 300 mgm. % sugar was found. Catheter urine showed no sugar by Benedict's test. Twenty-five c.c. of 10% glucose in saline intravenously and one 7.5 grain ampoule of caffeine sodium benzoate were given. Twenty minutes later he was fully conscious. Venoclysis of two litres of 5% glucose in saline, covered by 50 units of insulin was given. By 1800 hours he was bright and cheerful, somewhat thirsty and hungry. Blood pressure 82/44; urine three-plus sugar and a trace of acetone. At

* A paper read before the Halifax Medical Society, March 3, 1943.

2015 hours he suddenly became unconscious, had convulsive movements followed by left-sided facial weakness. At 2130 hours the blood-sugar was 170 mgm. %. However, 50 c.c. of 50% glucose was given in two doses. He became quiet, but never recovered consciousness, and, becoming progressively weaker, died about midnight.

Autopsy was performed the following morning by the city coroner. No brown pigmentation was seen. There was little subcutaneous or body fat. The tissues were moist. There was no evident dehydration. The lungs were normal. The heart was very small, with a pointed apex. There was a considerable area of liver fibrosis in the region of the gall bladder. The pancreas cut in some areas with unusual resistance, revealing broad fibrous septa, but not uniformly distributed. The stomach, small, and the large bowel, bladder, prostate, kidneys, and spleen were not remarkable. A careful and prolonged search for the adrenals was made, both before and after removal of kidneys but in spite of scanty peri-renal fat no adrenal tissue could be recognized in the gross. The brain was moist, some congestion of vessels, no evident cerebral softening.

Histological examination was made by the Provincial Pathologist. Section of fatty tissue taken from the usual location of adrenal showed a small area of medullary tissue with a little fibrous atrophic cortex. A similar section on the opposite side failed to reveal adrenal tissue. The liver showed some fatty degenerative change, and, possibly, some excess of glycogen. The pancreas showed no special abnormality by ordinary staining methods.

COMMENT

This unusual and interesting metabolic picture is one of a man who had been attending a civilian physician until ten days prior to death, avoiding army doctors to escape lowering of category or possible discharge. His referral to hospital was precipitated by "stomach trouble". The diabetic state was soon uncovered, but on account of its apparently mild character, treatment by insulin was delayed pending further observation and investigation, because it was felt that there was some co-existing disease or complication present. Tuberculosis or neoplasm were suggested, but, unhappily, Addison's disease was not thought of until the autopsy was being done.

In retrospect, the diagnosis of Addison's disease was based on great asthenia and hypotension; mild pigmentation, anorexia and nausea; and the autopsy findings of a small heart, absence of one adrenal, with true fibroid atrophy of the remaining adrenal gland. Upon reviewing the chest film a rather low cardio-thoracic ratio of 9 to 26 cm. or 35%, was noted. Cleghorn[12] found the ratio in several of his cases of Addison's disease to be below 40%, whereas the normal is about 50%. Pigmentation in Addison's disease is often yellow at first, as in this case, various shades of brown appearing later. It has also been observed[13] that the presence of severe symptoms in the absence of observable pigmentation indicates an acute fulminating type. Marked anæmia is not usually a feature of Addison's disease, but may occur.

The diagnosis of diabetes mellitus was considered justified on the grounds of a definite history of excessive thirst, hunger, and loss of weight, associated with glycosuria and ketonuria. The glucose-tolerance curve was that of mild untreated diabetes. The absence of observed changes in the islets of Langerhans at autopsy is quite compatible with diabetes.[14] Hæmochromatosis causes pigmentation and glycosuria, but this possibility was ruled out by the autopsy findings.

DISCUSSION

For over thirty years the influence of the adrenal on carbohydrate metabolism has been recognized. Britton and Siluette have demonstrated that experimental removal of the cortex lowers the blood-sugar level and decreases the storage of glycogen in liver and muscle but not heart muscle.[15]

It has long been observed that non-diabetic patients with Addison's disease have a disturbed carbohydrate metabolism. Thorn and others[19] have found that there is usually a low-normal fasting blood-glucose level. There is a decreased threshold at which hypoglycæmic symptoms appear, a flat type of oral glucose-tolerance curve, and a lowered glycæmic response to adrenalin. These disturbances are not appreciably corrected by administration of desoxycorticosterone acetate, but treatment using large quantities of fractionated adrenal cortical extract (Kendall's "Compound E") and corticosterone correct the abnormal carbohydrate metabolism. This would suggest that the cortical hormone aids the organism in the formation of glucose and glycogen from intermediate products of both carbohydrate and protein metabolism, thus regulating the utilization of carbohydrate.[16] The exact mechanism of this action of the cortical hormones on carbohydrate and protein metabolism is not yet understood, but it is suggested by Long[17] that two processes seem to be influenced by them; namely, the oxidation of glucose in the peripheral tissues, and the formation of carbohydrates from amino acids or their residues after deamination.

Kendall[18] has recently offered direct experimental evidence of the antagonistic action of adrenal cortical hormones to insulin. In the adrenalectomized, depancreatized dog he found that in the presence of small amounts of insulin,

the utilization of glucose was suppressed by fractionated crystalline cortical extract (Compound E). This was associated with a rise in blood-sugar level and by the excretion of glucose.[18]

It has been shown by Thorn and others[19] that symptoms of hypoglycæmia appear at higher blood-sugar levels in patience with Addison's disease than in normal persons. Levy-Simpson's case[2] was one of well marked Addison's disease in which diabetes developed during the last few weeks of life while under treatment with cortical extract. The patient showed a hypersensitivity to insulin, which has also been noted by many other workers. Reactions have been observed after doses as small as five units. In the present case it was noted that the patient at times seemed to be on the verge of coma before any insulin was given, then would brighten up for a short period. On the last day insulin was followed closely by unconsciousness, but with the blood-sugar in this apparent coma above normal.

In the case of Bowen *et al.*[7] a decrease in the blood-sugar level and disappearance of glycosuria in a diabetic were coincidental with the onset of Addison's disease; but after treatment with adrenal cortical extract the previous high blood-sugar level recurred. Desoxycorticosterone acetate therapy did not produce this effect. They suggested from these observations that lack of the adrenal cortical hormone attenuated diabetes mellitus in the human subject.

It has been postulated by Levy-Simpson that the existence of the two diseases together is not necessarily a coincidence; it being conceivable that the hypothetical infection or toxin responsible for the so-called atrophy of the suprarenal glands is also responsible for the pancreatic lesion.[2]

SUMMARY

1. The co-existence of diabetes mellitus and Addison's disease is extremely rare, and only eight reports of unequivocal cases were found.

2. An additional case, believed to be unique in Canadian literature, is presented, in which the symptoms antedated death by eighteen months but became acute only in the latter six or eight weeks. The chief cause of death was probably acute adrenal insufficiency. At autopsy, absence of one adrenal and true fibroid atrophy of the remainder was found.

3. A short discussion of some of the salient features of this case and others is offered.

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SOME OBSERVATIONS ON A PANAMA PASSAGE*

By Surgeon-Lieutenant W. A. Paddon, R.C.N.V.R.

THE flotilla consisted of five Bangor class minesweepers, the voyage was from Esquimalt to Halifax and the duration, for one reason or another, was 44 days

The average ship's complement consisted of about six officers and seventy-five ratings. All in all there were about four hundred men in the flotilla. Each ship carried one sick bay attendant (S.B.A.) and there was one medical officer for the flotilla. The plan was that he should circulate from ship to ship. Actually, as a result of overcrowding in certain ward-rooms, he remained on board one ship for about two weeks, and was on another for the remainder of the voyage.

The medical equipment consisted of one chest No. 5, one surgical kit and the usual medical stores carried as standard equipment on a Bangor sweeper. In addition there were a few extra supplies, chiefly in the form of drugs, carried by the medical officer. As medical officer

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I did not have the slightest idea what might actually be carried to best advantage, nor was I able in the haste of leaving at short notice, to obtain any advice from more experienced men. Perhaps the unduly long voyage caused some of the shortages, but shortages were certainly felt, and certain suggestions will be respectfully made regarding supplies which might be carried on this voyage, as it will doubtless be repeated in the future.

The number of illnesses and injuries in a trip devoid of enemy action was surprising to me. They will be itemized below. In addition to the care of these cases, first aid lectures were given on two ships, and arrangements were made with the coxswains and S.B.A. staff of the others so that in addition to each of the regular first-aid parties on these ships (consisting of S.B.A. and coxswain) there would be about four other men who have some of the rudiments of first aid and a fair knowledge of the use of stretchers and the transportation of casualties. This was inspired partly by the experience of one of the ships just before the start of the voyage. An officer had broken his leg, and it was necessary to move him. He was put into a Neil-Robertson stretcher backward, and nearly two hours were required to complete moving him — after a fashion—off the ship and on to a dock. It is felt that such a hair-raising performance is not likely to be repeated in any of these five ships again.

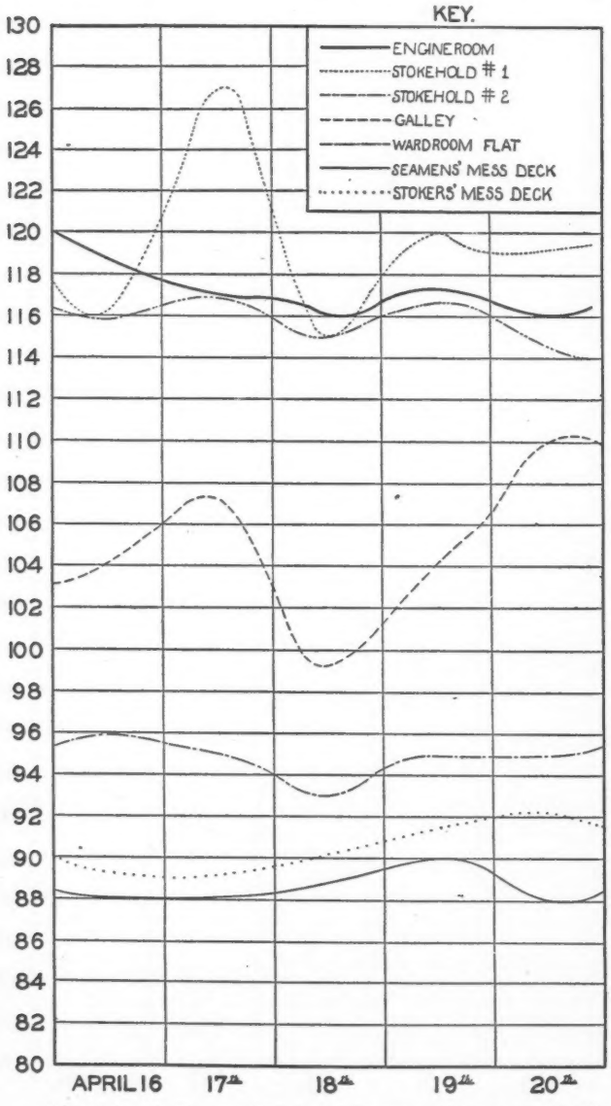

Chart 1.—"Bangor" minesweepers. Specimen tropical noon temperatures in living and working spaces. Mean of five ships.

In addition to first aid instruction, an effort was made to re-distribute some of the ship's medical stores so that one small shell would not be able to destroy the entire stock. Three small dressing kits were distributed in the engine-rooms, chart-rooms and seaman's mess decks respectively as a tentative arrangement.

Steps were also taken to instruct officers in the administration of morphine to wounded personnel.

The remainder of this report will consist of three parts, one devoted to special hazards of this tropical run, a second devoted to recommendations regarding medical stores for such a trip, and a third devoted to a detailed list of cases treated classified by diagnoses made.

Special Problems in the Run from Esquimalt to Halifax

Venereal diseases.—Promiscuity in these ports about Central America and the Caribbean is almost awe-inspiring in proportions. Aside from the problem of avoiding the disgrace of the uniform in daylight in the streets is the task of keeping venereal diseases at a minimum. The supplies of condoms recommended were absolutely inadequate, and had to be replenished. In addition prophylactic use of the calomel ointment tube is necessary. Rather than giving them to the ratings I found it cheaper and more reliable to appoint the S.B.A. to administer the treatment. In addition I gave prophylactic sulfathiazole, grams 1 t.i.d. for three days, to all ratings who had failed to use any prophylaxis. Not one so treated developed gonorrhœa.

Heat exhaustion.—The Bangor may well be the hottest ship in which to live in the entire Navy. Some idea may be obtained from the appended chart of five days' temperatures for the five ships, taken only by day. By night,

with the ship closed up for "darken ship" the average temperature increased from five to ten degrees over the temperature shown in the graph. Cases of transient heat exhaustion with mild collapse were frequent until saline tablets (not obtainable until we reached Panama) were instituted. These were given, four a day, with food only, as otherwise they produced nausea. Heat exhaustion ceased at once on this regimen. How much of the effect was psychic is debatable.

In Mexico and Nicaragua the governments were trying to stamp out *intestinal parasites*, which are very widely spread. We were warned that nothing obtained ashore should be eaten except after the most careful consideration. Food prepared ashore is quite unsafe in many but the best hotels.

A good deal of mild diarrhœa was observed. This was generally attributed to the drinking water, and there is some evidence that this was the case. The ships' water was distilled most of the time, and it varied from highly flavoured but recognizable water to a substance almost resembling thin volcanic mud, depending on the state of the tanks and the amount of rolling the ships were doing. Certainly it was sterile, and probably it represented only a mild inconvenience.

STATISTICS OF THE MEDICAL CASES

Diseases	*Number of cases*	*Remarks*
Acute appendicitis...	2	Both hospitalized, one in Mexico, and one in Halifax
Acute gastroenteritis.	1	Hospitalized at Panama
Cellulitis	3	2 hospitalized, one in Panama, and one in Halifax
Fracture (compound)	1	Middle phalanx of finger, tendon severed. Repaired, doing well
Lacerations (suture).	2	Doing well
VDS.	1	Apparent chancre
VDG.	7	2 still slightly active
VDG. prophylactic Rx	40	Exposed to prostitutes without precautions. Given sulfathiazole
Virus pneumonia....	1	(Considerable evidence this was psittacosis)
Heat exhaustion.....	17	All had some collapse
Scabies	2	No spread of disease
Pediculosis pubis....	8	
Epidermophytosis ...	58	Feet, groin, etc.
Minor injuries.....204		Burns, scalds, scratches, sunburn, etc.
Miscellaneous 285		Mostly trivial, gastro-intestinal upsets, boils, headaches, colds. One fairly acute bronchitis, about a dozen eye cases, as many ears, etc.

Except for the appendices these cases were about equally divided among the five ships. *Caraquet* (J-38) has produced five acute appendices in her short life of twelve months, two of them on this voyage.

RECOMMENDATIONS FOR MEDICAL STORES IN SHIPS OF THIS TYPE

1. Five hundred sulfathiazole tablets per ship for such a trip. (These are not an excessive quantity, see above, also Part III.)
2. One thousand saline tablets—0.65 grm.—especially to be used by stokehold and engine-room staff and cooks.
3. Five gross of rubber condoms.
4. One hundred "Sanitubes"—"Torpedoes" or equivalent.
5. Urethral syringes for each ship.

Stores were otherwise generous and in all respects satisfactory.

SOME GENERAL CONCLUSIONS

From the data presented it can be deduced that the average officer or rating in the flotilla complement of about four hundred paid 1.6 visits to the M.O. or the S.B.A.'s under his supervision. This was during a period of about seven weeks. During the voyage about 4% of the personnel suffered from heat collapse of greater or lesser severity, and the Pacific side of Panama proved hotter than the Atlantic side. About 2% of the personnel developed venereal disease. I am certain that the prophylactic use of sulfathiazole prevented many more cases. In several of the group so treated the ratings involved actually came to me with the astoundingly naïve statement that their kind-hearted professional partners had told them of their infection with gonorrhœa, and had advised them to report to their medical officer as quickly as possible. One might deduce that the world's oldest profession is having to provide many services never before imagined possible in order to compete with the horde of amateurs produced by wartime conditions. Certainly, when a rating reports that his prostitute bought him drinks during the evening and subsequently sent him for medical advice one suspects that the millennium is approaching.

The cases otherwise were roughly those common to naval medicine in general and have no especial interest in this report. The "virus pneumonia" gave a better history for psittacosis than the usual barracks pneumonia, but proof of such a diagnosis would be difficult.

The Bangor Sweeper would need considerable internal revision to be a very safe or comfortable ship in the tropics. Our trip was made in a supposedly cool time of year, but ventilation and facilities for refrigeration were grossly in-

adequate. A certain amount of food—especially meat—had to be jettisoned as unfit to eat or even to live with. Water was unattractive, inadequate, and usually in the neighbourhood of body temperature.

The Naden trained sick-berth staff all proved enthusiastic and generally satisfactory. The officers of the five ships were exceedingly friendly and co-operative, and the Medical Branch in general has a most loyal friend in Lt.-Cmdr. T. P. Ryan, R.C.N.V.R., so widely known as "Two-Gun" that the name can no longer be regarded as an impertinence. He unhesitatingly turned the whole flotilla about and took one ship back steaming at high speed to Manzanilla, Mexico, at my request, when her captain developed a very acute and violent appendicitis. Had he told me to operate on the wardroom table or refused to undertake the trip back, the results would probably have been unpleasant for both myself and the patient. He was at all times enthusiastic about health problems of the ships, and as flotilla senior officer, he was most helpful.

Shore medical facilities at the American bases visited en route are good. A new government hospital at Manzanilla appears to be completely modern and competently staffed, and the surgeon there, Dr. Bayardo, is a useful ally to the naval medical officer.

EPIDERMOLYSIS BULLOSA WITH DIGESTIVE DISTURBANCES

By Captain Michel J.-M. LaSalle, R.C.A.M.C.

Case Report

S.B., a 20-year old French Canadian, enlisted in an infantry unit in July, 1940. His category was A-1 and the medical examiners noted only slight flat feet. He had been a labourer, was never incapacitated in any way, and had never taken part in sports because, as he put it, they did not interest him.

During six months he drilled, went on route marches, and did his work well. Then he began to complain of pain in his feet. He was taken off route marches and employed mostly on guard and picket duties. There was no improvement and he was finally boarded B-2 in May, 1941, for flat feet. No other abnormalities were noticed in his feet.

Two months later, in July, 1941, he developed Vincent's angina and at the same time his gums began to bleed quite often. He had to be sent to the dentist three times in two months. I would like to stress these bleeding gums which, considered alone and not in direct connection with this presentation, might pass as an irrelevant factor.

Another two months passed and, in September, 1941, he was hospitalized for "recurrent epidermophytosis" of hands and feet. Part of the entry in his chart reads: "Both feet show superficial pustules and flabby skin on the soles. There are minute blebs on all fingers of both hands". The diagnosis was "secondary infection superimposed on epidermophytosis". This was probably suggested by the "superficial pustules" and the "minute blebs". Iodine and salicylic acid paste, topically, cured the condition, apparently.

He went back to his unit, but again reported sick and was again hospitalized, this time with diphtheria. While under treatment he again developed the skin affection and the history shows that it was diagnosed and treated as "trichophytosis".

From December, 1941, till June, 1942, he was variously employed as fireman, cook-house helper, and hut caretaker. This entailed some walking, and he began to complain of inability to wear boots because they caused chafing and blisters. In June, 1942, his category was lowered to C-2 and he was given cleaning work in the Quartermaster's Stores. But one month later he reported sick once more with "athlete's foot". His unit Medical Officer sent him to a consultant and this entry was made: "Infection mild at present. It is felt that the condition can be kept under control by the man and the unit M.O.".

He was given light and simple duties. For reasons not stated in the history he was referred to the Army Examiner who reported as follows: "Limited native ability. Recommend he be discharged on grounds of low mentality".

Board proceedings were started and while the formalities were progressing he was granted leave for five days. This was in October, 1942. While home he was taken ill with sudden pain in the stomach. He described it as "une déchirure", a "tearing apart", which was followed by uncontrollable vomiting of blood at repeated intervals. He himself placed the vomited quantity at two pints. The attending

family physician wrote that "the quantity was copious".

It has been said that the general practitioner meets with only two real emergencies: hæmorrhage and suffocation. Imagine that family physician, confronted with a continuous hæmatemesis which he is unable to stop, with a scared family about him, and thinking quickly of a possible perforated ulcer, erosions of the œsophagus, liver disease, cancer, œsophageal varices, and all other affections which cause vomiting of blood. Had any one suggested that the hæmatemesis might have a direct relation with his patient's so-called "athlete's foot", that family physician certainly would have doubted it, to say the least.

S.B. was admitted to the Halifax Military Hospital with a tentative diagnosis of peptic ulcer. His hæmoglobin was 45%. Two series of x-rays were taken; both were negative for ulcer or other abnormality. There was no occult blood in the stools. The final entry on his chart reads: "In spite of two negative x-rays, opinion favours a diagnosis of peptic ulcer".

During this investigation he developed, while in hospital, some new lesions on his hands and feet. They were treated as "epidermophytosis" and responded well to sulfathiazole ointment. Ten days later there was a relapse, and the entry reads: "Three septic blisters on left foot. Opened and skin removed". After six weeks in hospital he was granted convalescent leave, and while home he again developed blisters on the feet. His family physician treated him for some time and he came back to the Halifax Military Hospital in the latter part of January, 1943, when he was taken in hand by the medical consultant. It was only at this time that the information was elicited that the patient's mother also suffers from the same kind of "athlete's foot", and that she has had it for years.

DISCUSSION

Goldscheider[1] first described, in 1882, a rare and peculiar disorder which he called acantholysis bullosa, and now better known as epidermolysis bullosa. This disorder manifests itself in the development of vesicles and bullæ on even slight trauma and results in scarring and atrophy of the parts of the body frequently exposed to irritation. The lesions are almost asymptomatic, unless secondarily infected, and in about 3% of cases these lesions are found on the mucous membranes of the gastro-intestinal tract, especially the mouth, œsophagus, and stomach. Usually a definite hereditary tendency exists. Pathologically, there is a defect in the formation of elastic tissue of the papillary zone.

The simple form of the affection is rare, and the involvement of the mucosæ is rarer still. Some of these have been described in the literature, and in one case œsophageal stricture has resulted.[2]

In order to confirm the diagnosis the patient was asked to take longer walks and the vesicles appeared at once.

SUMMARY

In summary we may say that our case presented the two outstanding characteristics of epidermolysis bullosa: (*a*) an hereditary factor; (*b*) the development of vesicles and bullæ on even as slight a provocation as walking.

In addition, the case presented showed the rare involvement of the digestive mucosæ as shown by copious hæmatemesis. The bleeding gums, mentioned before, may or may not have been a manifestation of the affection.

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INDICATIONS FOR DRUG THERAPY IN HEART DISEASE

By Stewart U. Page, M.A., M.D.

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IN recent years some new drugs have appeared and a number of newer derivatives which are useful in the field of cardiology. We have also come to recognize more precise indications for and limitations of usage of the older drugs. Present indications for the use of the drugs more commonly employed will be discussed under the following headings: (1) digitalis type drugs and quinidine; (2) diuretics; (3) vaso-dilators; (4) opiates.

Digitalis.—Due to careful clinical observation over a period of years there has come a more accurate delineation of the scope of digitalis therapy. Its use is now largely restricted to those cases with congestive heart failure irrespective of rhythm or etiology. It is, however, often inefficient, failing completely in some cases.

While its value has been most strikingly exemplified in heart failure with auricular fibrillation, particularly of rheumatic type, its worth is now recognized in the presence of normal sinus rhythm; results here, however, are less uniform and less predictable. In these cases reduction of rate is not always accompanied by clinical improvement and conversely improvement may be seen without reduction of rate. Favourable results have been obtained in hypertensive heart failure with normal rate and regular rhythm.[1] The course after the onset of failure in normal rhythm may be short; thus the likelihood of improvement from digitalis is lessened; but in any given case the response to digitalis is not a guide to life expectancy. The most consistent results with digitalis in heart failure are undoubtedly obtained with rheumatic auricular fibrillation and the difference in response of heart failure to digitalis lies between this condition and all other kinds of heart failure irrespective of rhythm.[2]

To establish a diagnosis of heart failure it is not required that high systemic venous pressure, an enlarged liver or peripheral œdema be present; the diagnosis can be made on evidence of isolated failure of the left ventricle. Early findings are gallop rhythm, dyspnœa of various types, x-ray evidence of pulmonary congestion, laboratory findings of diminished vital capacity and prolonged pulmonary circulation time.[3] Left ventricular failure occurs frequently and has a serious prognosis; in its early stages it is often without associated failure of the right ventricle; frequently these cases are ambulatory.

Certain contraindications for or modifications of the use of digitalis should be considered. Digitalis should not be given for mere breathlessness; one must consider as a cause chronic bronchitis, asthma, or emphysema, nervousness with sighing respirations, or obesity, or that the patient is merely out of condition, no cardiac enlargement being present usually. Cardiac dyspnœa is of pulmonary[4] origin, being due to reflex stimulation resultant on congestion of the pulmonary circuit. In consideration of the cause of dyspnœa the significance of pulmonary emphysema or chronic bronchitis as sole or contributing factors, must be evaluated before digitalis is administered. As a corollary it may be added that dyspnœa is not an early symptom of *all* forms of heart disease.[5] In diseases of the coronary arteries, of the right ventricle, of the pericardium and in pure tricuspid stenosis, dyspnœa and related symptoms frequently do not appear, or are late occurrences. In diseases of the mitral valve the left ventricle and the aortic valve, dyspnœa is one of the first symptoms.

Cyanosis is not necessarily an indication for the administration of digitalis, being often due to pulmonary disease rather than to heart disease. When due to heart disease it is most commonly because of congenital defect or from pulmonary engorgement in mitral stenosis with local systemic stasis.[6] In the latter digitalis is usually not indicated unless auricular fibrillation is present or the liver is enlarged and the venous pressure raised.

The finding of auricular fibrillation should not be considered an immediate indication for digitalis therapy; this is often true in old people with a rate somewhere within normal limits and especially if there are no subjective symptoms or objective findings of cardiac insufficiency. Similarly, in fibrillation of the paroxysmal type digitalis need not be given unless the attack persists or if passive congestion results. In the auricular fibrillation of thyrotoxicosis it should be remembered that the rate does not respond so well and there is danger of digitalis intoxication if the drug is pushed in an effort to slow the rate to a normal level. When the activity of the disease is reduced as a result of treatment the ventricular rate will be found to respond in the usual way.

In the treatment of rheumatic heart disease in children digitalis is not very important. Fibrillation is uncommon and the fact that infection is present in the heart renders digitalis of little value in the acute stage, but in convalescence it may be valuable. Relatively large doses of digitalis have been found to prevent the exaggerated acceleration of the ventricles produced by exercise in patients with auricular fibrillation.[7] Digitalis can sometimes be used to control the rapid ventricular rate of auricular fibrillation when heart failure is not present and to reduce the number of premature ventricular contractions when they are troublesome. Relief is not infrequently affected by digitalis alone in paroxysmal cardiac dyspnœa especially when signs of failure are limited to the pulmonary system.

In the early stage of coronary thrombosis digitalis is not of value and may be harmful, perhaps promoting the development of ventricular fibrillation. Later, if congestive failure

develops it may be indicated, particularly if auricular fibrillation complicates the picture.[8] In angina pectoris there is diversity of opinion regarding the possible harmful effects of digitalis; it is claimed that coronary artery constriction is produced. It does, however, relieve the more continuous type of precordial pain which may occur in congestive failure by improving the myocardial efficiency.

Digitalis should not be used for simple tachycardia, or the tachycardia of hæmorrhage, or in cases of peripheral circulatory failure where heart failure is not present. There is considerable evidence to support the claim that digitalis is of value in preventing cardiac failure in patients with regular rhythm[9] and it is probably not wise to omit this drug in patients with diminished cardiac reserve who have previously shown failure, even though symptoms are absent. Digitalization from the outset is seldom now practised in pneumonia, although some authorities advise it in bronchopneumonia in all cases over sixty years of age.

True idiosyncrasy to digitalis is probably rare, but gastrointestinal and other subjective symptoms are common. Regarding the incidence of these toxic effects, with slightly damaged hearts, nausea and vomiting are likely to occur before disturbance of rhythm, such as premature beats, coupled rhythm and ventricular tachycardia, but with severe disease of the myocardium signs suggesting toxicity, disturbances in rhythm and conduction, may occur with relatively small amounts of the drugs, and often without any previous warning of toxicity.

In ambulatory cases with failure of mild or moderate degree rapid digitalization is not necessary and one can be content to get full therapeutic effect in a week with doses of gr. 1½ of the leaf t.i.d.p.c. In more severe cases, for oral administration complicated calculations of total dosage are not necessary. A 150 lb. man requires roughly a total dosage of 30 gr. One can give about 1/5 of this total dose—6 gr. every 6 hours for 3 doses, with subsequent doses related to the clinical improvement, such as slowed apical rate, relief of dyspnœa, disappearance of cyanosis, œdema and venous congestion. For an immediate effect in grave cases one can give digitalis by the intravenous route. As much as 12 c.c. of solution in ampoules (2 c.c. equal 1 cat unit) has been given in extreme urgency, with subsequent doses as indicated.

Combined digitalis and strophanthus therapy.—For still more rapid effect in serious cases strophanthus in its crystalline form of ouabain is valuable. It must not be administered if digitalis has been used within 2 weeks or where there has been recent myocardial infarction.[10] In dosage of 1/240 to 1/120 gr. (*i.e.*, 0.25 to 0.5 milligrams) administered intravenously, it exerts an initial effect in 5 to 20 minutes, a maximum effect in 15 minutes to an hour. While ouabain by virtue of its known chemical composition can be given in exact dosage, it has the disadvantage of being rapidly eliminated. One can avoid this by supplementing its early action by a simultaneous single oral dose of digitalis (6 to 8 cat units) followed by subsequent digitalization. Ouabain can be administered safely to patients with auricular fibrillation as the ventricular rate can be used as a guide of its effect. Greater care is necessary when it is used in the presence of regular sinus rhythm,[11] when clinical improvement is the measurement of full therapeutic effect. A second smaller dose of ouabain may be given in either case 1 hour later, before the administration of digitalis by mouth.

Digitalis glucosides.—There is insufficient proof at present that any of the digitalis substitutes or purified factors are more valuable than the standard leaf.[12] Digilanid, a mixture of the crystalline glucosides A, B and C of *digitalis lanata,* by oral administration has given good results and digilanid C, suitable for intravenous administration, will shortly be available,[13] but there is insufficient evidence to prove any superiority of action.

Urginin is a mixture of the glucosides A and D of squills. Administered orally, its effects in congestive failure are similar to those following administration of digitalis.[14] The ventricular rate is slowed particularly in the presence of auricular fibrillation, but with regular rhythm, reduction of rate is not marked. It offers no advantage over digitalis beyond the fact that it is applicable in those cases which cannot tolerate digitalis. It is given in tablets of 0.5 mgm. (1/120 gr.), (1 tablet equals slightly more than 2 cat units). There is evidence that squills and its derivatives have not a primarily diuretic effect; diuresis being due to secondary improvement in the circulation.

Quinidine.—In the past more attention has been paid to contraindications than to the indications for quinidine therapy. This is probably due to the frequency of embolism which

has occurred. The field for quinidine therapy has widened in recent years. There is still some variance of opinion among physicians regarding the advisability of attempting to establish normal rhythm with quinidine in cases of auricular fibrillation. It is relatively common for auricular flutter to develop and it may continue permanently or revert to auricular fibrillation or normal cardiac rhythm. Quinidine has a special field in young persons with idiopathic auricular fibrillation, but without other evidence of heart disease. It is generally conceded that the best results are obtained in cases of auricular fibrillation which have not been present more than a month, and while this is generally true it does seem that in the treatment of any given case, after a period of a month the duration is of little consequence.

Quinidine should also be administered in cases where auricular fibrillation is caused by hyperthyroidism which is not associated with signs of organic heart disease and continues several weeks after thyroidectomy has been performed. It is of value in paroxysmal auricular tachycardia and auricular extrasystoles and has been used in coronary thrombosis to prevent the onset of ventricular tachycardia and ventricular fibrillation. Some investigators have used quinidine for the prevention of attacks of angina pectoris, although the rationale of this form of treatment is not clear. Regarding the contraindications, it is most dangerous where there is a history of embolism, where there is extensive myocarditis, or where there is an idiosyncrasy to quinine and in partial or complete heart block.

Dosage of quinidine. — In auricular fibrillation one can start with an initial dose of 3 gr. of quinidine sulphate by mouth, and if no idiosyncrasy is shown increase the dose, so that on the fifth day one is giving 30 gr. spread over a period of 24 hours. It may be necessary to continue this dose for 7 to 10 days. If normal rhythm has not occurred by then administration is not likely to be successful. The use of quinidine sulphate intravenously should be reserved for cases with persistent attacks of ventricular tachycardia where shock and vomiting preclude oral administration.[15] It is given slowly in 5% solution in distilled water, stopping when the arrhythmia has been abolished or untoward symptoms develop. The dose varies, 7½ to 18 gr. has been employed with larger doses over a period. The ability of quinidine sulphate to slow the ventricular rate has been demonstrated when the abnormal rhythm could not be abolished.[16]

Diuretics.—In congestive failure the use of diuretic drugs such as the purine derivatives, mercury, and certain salts is indicated when œdema and dyspnœa persist after a regimen of digitalization and rest, and restriction of the fluid and salt intake. As a rule, if there is no great urgency and no nausea and vomiting, one should give xanthine by mouth a trial, later resorting to the mercurials if necessary. Diuretic therapy is frequently sufficient to cause disappearance of an ascites while hydrothorax is usually more resistant and may require tapping. Diuretics are most effective with normal or relatively normal kidneys, and they are more effective after the patient has been digitalized than before.

Xanthine (or purine) group.—Theophylline derivatives (which include aminophyllin) are the most efficient diuretics, but are more toxic and more apt to produce irritation of stomach than the theobromine derivatives, which possess slightly less diuretic effect. The sodium salicylate derivative of the latter, diuretin, dose 7½ to 15 gr. 3 or 4 times a day or the calcium salicylate derivative, theocalcin, doses 15 to 22½ gr. 3 or 4 times a day, are both effective. Theophyllin 3 to 5 gr. 3 or 4 times a day is a more effective diuretic than its less toxic derivative aminophyllin, dose 1½ to 3 gr. 3 or 4 times a day. These compounds should not be administered steadily, since they lose their diuretic effect unless free periods of several days frequently intervene. In addition to its diuretic value in congestive heart failure, especially when combined with salyrgan, aminophyllin has considerable value as a respiratory stimulant and as such has several uses. In paroxysmal nocturnal dynspnœa or cardiac asthma manifesting left ventricular failure the intravenous use of aminophyllin, 0.24 or 0.48 grams may benefit or completely relieve the distressing episodes of breathlessness. Similarly, intravenous administration is valuable in Cheyne-Stokes respiration associated with left ventricular failure, rarely failing to restore respiration to normal.[17] Aminophyllin given intravenously should be accompanied by the oral administration of a barbiturate to allay the central stimulation which may follow its use.

Mercurials.—There is increasing recognition of the value of mercurial diuretics in the treat-

ment of heart failure even in the absence of obvious œdema. In those cases with little or no peripheral œdema but with dyspnœa and signs of pulmonary vascular congestion in spite of full digitalization a mercurial will frequently bring relief. In hypertensive heart disease manifesting failure the gross signs are frequently rapidly relieved, prophylactically in these cases the occasional use of a mercurial may prevent recurrence of symptoms for long periods. The presence of albumin in the urine is not a contraindication for mercurials, although increasing albumin, casts or increasing red cells in the urine is a danger signal. Kidneys capable of concentrating to a specific gravity of 1.018 are desirable, if there is a fixed specific gravity of 1.010 damage may be done. Large amounts of the newer mercurials have been given to patients over a period of years without perceptible damage to the kidney, liver or other organs.

The commonly employed preparations esidrone, mersalyl, neptal, and salyrgan all contain theophyllin, which prevents necrosis at the site of injection and promotes more rapid and complete absorption and greater diuretic effect.[18] Intravenous injection usually produces a greater diuresis than intramuscular injection. Neptal and esidrone when given intravenously or intramuscularly produce the greatest diuresis, rather larger than salyrgan and much larger than mersalyl.[19] The usual dose, in heart failure cases confined to bed, especially with œdema, is 2 c.c. of a mercurial diuretic, intravenously or intramuscularly, every third day. To accent mercurial diuresis ammonium chloride, euphyllin and urea have proved effective agents. Ammonium chloride as a premedication, 30 gr. (four 7½ gr. enteric coated tablets) 2 hours before the injection is most effective, less effective when given 15 gr. t.i.d.p.c. for 2 or 3 days. Urea, 30 grams, is most effective two hours before the mercurial salt and likewise euphyllin in dosage of 0.4 grm. The taste of urea can be somewhat disguised in coffee, urea is contraindicated of course in disease of the kidneys with nitrogen retention. The value of digoxin or vitamin C in accentuating mercurial diuresis is inconstant. A number of mercury-theophylline combinations have been used by the oral route and mercury suppositories rectally. Excellent results have been obtained in hypertensive heart failure, the oral method usually giving the greater diuresis. It has been found however, that the less retained fluid is present, the greater is the incidence of gastro-intestinal distress. Ammonium chloride in association will accent the diuresis by either method. While the use of mercurials orally has been largely confined to bed patients, they have proved effective in the ambulatory stage.

Vasodilators. — There is considerable controversy regarding the value of the xanthines as vasodilators; there is little experimental evidence to prove an increase in coronary bloodflow. Some investigators accord theophylline and theobromine and their derivatives considerable value as vasodilators in the early stage of coronary artery disease in spite of some criticism by others over their failure in certain cases of angina. There is a better possibility of their success in less extensive deficiency of the coronary circulation.[20] By some, the prolonged use of theobromine sodium acetate, 7½ gr. dose, or theophylline sodium acetate, 3 gr. dose, four times a day, before meals and on retiring has been found of benefit in angina pectoris.[21] Given with an enteric coating, gastric distress is minimized and when taken at bedtime the delayed absorption may be of value in preventing angina in the forenoon. Clinically, aminophyllin especially when given intravenously has been shown to delay the onset of anginal pain provoked by exercise.[22]

Among the nitrites, nitroglycerin is undoubtedly still the best. There is a limited field of use for the longer acting nitrates, such as erythrol tetranitrate and mannitol hexanitrate due to frequency of side-effects.

The rôle of quinidine sulphate in prevention of attacks has already been indicated, although the rationale is not clear.[23] Digitalis is rarely of value in angina pectoris and in some cases causes a striking increase in the frequency of attacks.

Coramine does not seem to have a direct action on cardiac efficiency. Its favourable action on respiratory distress of cardiac diseases seems to be due to several possible causes such as, respiratory stimulation of the respiratory centre, reduction of intrathecal pressure, relief of cerebral venous engorgement or other unknown causes.

Opiates.—Opinion varies among investigators as to the dosage of opiates in acute myocardial infarction. Some advise a large dose such as ½

gr. morphine immediately, other investigators claim that smaller doses are safer, and they advise just enough morphine to dull the pain and to relieve breathlessness if present. It is probably safer to start with $^1/_4$ gr. dose and repeat with $^1/_6$ or $^1/_4$ gr. dose. In paroxysmal cardiac dyspnœa, morphine sulphate in dose of $^1/_6$ to $^1/_4$ gr., depressed the respiratory centre and allays anxiety and restlessness, it also aids in relief of dyspnœa and cough and lowers the blood pressure. However, in cases with asthmatic type respiration, with greatly prolonged expiration, morphine in large doses may help to precipitate acute œdema of lungs through diminution of the respiratory effort. Also in the presence of acute pulmonary œdema large doses of morphine may prove fatal, through too marked a depression of respiratory centre and consequent inability to cough up the copious fluid.

In the treatment of acute cor pulmonale of pulmonary embolism, papaverine hydrochloride[24] or eupaverine, a less toxic[25, 26] derivative, is of value. The dosage of the latter is 0.065 grm. (1 gr.) and may be given intravenously and repeated at hourly intervals. It appears to have a beneficial effect attributed to relaxation of spasm[26] in pulmonary arteries and also to coronary dilatation. Morphine, gr. ¼, or pantopon, gr. 1/3, may be used additionally for greater relief of pain. Papaverine is recommended by some investigators for the relief of pain in coronary thrombosis of the aged. Pharmacologically[27] it has been shown to be a powerful and long-lasting coronary dilating agent and a preventive of ventricular fibrillation.

SUMMARY

Indications for digitalis administration and some contraindications have been discussed. In heart failure, if rheumatic auricular fibrillation is excluded, digitalis gives about as good results in normal rhythm as in auricular fibrillation. Digitalis substitutes are discussed.

There is a quite definite, if limited, field for quinidine administration.

The value of the xanthines as diuretics and vasodilators is discussed. The mercurials, especially when combined with theophyllin have a very definite place in the treatment of heart failure not responding to digitalization and rest.

Certain indications for the use of opiates are stressed.

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A SIMPLIFIED CLASSIFICATION OF SKIN DISEASES

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TO most general practitioners the average book on skin diseases may be described in the words often used by a late teacher of mathematics when speaking of the efforts of some of his students to explain certain problems, "as clear as mud". While much detailed information about individual skin conditions is given, the classification is so involved and complicated that it is difficult to apply this knowledge to any given case, *e.g.*, one smaller book gives descriptions of 326 skin diseases; these are classified under 19 main headings. Some classes are based on the skin reaction, *e.g.*, hæmorrhages, atrophies, etc., others are based on specific causes, *e.g.*, viruses, plant parasites, etc., still others according to the part of the skin or its appendages which are involved.

This article suggests a simple classification or way of viewing skin diseases, which I have found very workable from the practical standpoint. After all, the average patient comes to us not for traditional classification and naming of his disease, even on those occasions when he himself states that he wants to know what disease he has. His chief object is to obtain cure or relief.

Before proceeding to give a logical classification of skin diseases may we first offer what might be called a philosophy of sickness in general and then apply it to the study of skin diseases. The signs and symptoms of diseases which are not due to actual destruction of tissues are usually the result of the reaction of the body as a whole, or of one of its organs, to some offending substances or force which threatens destruction or interference with function. This reaction may be: (1) Increase of some normal function. (2) Decrease of some normal function. (3) Unaccustomed activity or function.

This reaction is not the disease. It will tend in most cases to return to normal when the offense is removed; *e.g.*, in the case of diphtheria, the membrane, the temperature, and the increased pulse rate are not the disease but are an attempt by the body to destroy the invading organism and the toxin it produces. The physician does not attack these body reactions but attempts to neutralize the toxin and when that is done the signs and symptoms soon return to normal. Or again, is it not better in certain mild infections to allow the patient's temperature to remain fairly high that he may get rid of his infection more quickly and effectively? Of course this is heresy according to old ideas which thought of diseases in terms of "fever", and considered it necessary to reduce that body reaction to the temperature which would be considered normal for health. But whether or not you will agree with the viewpoint as applied to fevers, I think you will find it helpful to apply it to skin diseases. The skin is an organ, made of living cells, having blood vessels, nerve terminals and serum. The cells vary as to type and function. This organ reacts to various forces and substances, as do other organs of the body. As in the case with other organs an offense against the skin sometimes calls forth a reaction of the whole organism.

At other times the reaction is entirely limited to the skin or to one area which is invaded. Much study has been made of the various types of skin reaction, the parts played by glands, nerves, capillary walls, leucocytes, etc., and the results are invaluable, but these matters can for the present be ignored in forming a working classification for clinical purposes. The majority of dermatological cases do not require any complicated laboratory procedures for a diagnosis adequate for treatment. In a minority it is absolutely essential to have a laboratory investigation.

The general classification of skin diseases, which is herewith suggested, is based on the idea that every abnormal skin condition may be thought of as a reaction against one of three offenses, each sub-divided into two classes:—

I. Living offenders may be:
   1. Parasites.
   2. Bacteria.

II. Abnormal forces may be:
   1. Mechanical.
   2. Waves or emanations like light, heat, cold, electricity, x-rays.

III. Chemical substances may be:
   1. Externally applied.
   2. Endogenous
      (*a*) Exanthemata, including syphilis.
      (*b*) Allergic dermatoses, including drug reactions.

It must be understood that almost any combination of these irritants may be acting in a given case, and that any one of them may initiate the trouble, to be joined or replaced by another. The eczema may become infected, or it may follow scabies or a coccigenic infection which has been cleared up.

As we noted above the reaction which is a sign or symptom of diseases may be either increase or decrease of some normal function or some unaccustomed function. In the case of the skin it is perhaps helpful at this point to call attention briefly to some of its more normal functions. Physically, chemically, and vitally it protects the body against things and forces in its environment which might be harmful. It is also, along with its modifications, the organ of sensation; *e.g.*, special, such as heat and cold, hardness and softness, motion and position. Physical protection is given by the skin in the following ways: mechanically, by resisting trauma, insulation against heat and cold and electricity, radiation or conservation of heat as required, protection against strong light by pigment. Chemically, the skin protects more sensitive underlying tissues against most of the weak acids and alkalis found under natural conditions; against many artificial ones as well.

Vitally protective functions include the following: the skin is not quickly waterlogged nor desiccated. Irritating chemicals are neutralized or washed away or absorbed and

carried to more definitely excretory organs. Every bacterium and parasite cannot be kept outside of the epidermis, but more blood is brought to the affected area, and skin cells, leucocytes, and serum oppose and, if possible, destroy the invaders. We may note in passing that one of the most important and vital functions of the skin seems to be to stimulate the reticulo-endothelial system in preparing the bacteria-fighting mechanism of the entire body.

When the normal functions of the skin, or, indeed, some abnormal functions, reach the point of causing disfigurement or discomfort, those by-products of reaction against offense may cause the patient to seek relief; and he will describe his symptoms in terms of appearance (rash, abnormal colour, swelling, weeping, scabs, pus, scaling, etc.), or feelings (itchiness, tenderness, pain, etc.). Given a patient with a group of these symptoms, how can the physician tell against what the reaction is taking place? We cannot here give the differential diagnosis of, say the 326 skin diseases mentioned above; but perhaps a few dogmatic general observations will suggest how useful the classification and viewpoint can be in practice.

Most of the commoner skin conditions are readily recognized by sight by anyone who has seen a fair number of cases. Many doubtful cases can be recognized nearly enough to give satisfactory treatment, even if a technical name is not applied, and even if the detailed causes cannot be stated. Certain of the cases can be diagnosed by their response to treatment in a comparatively short time. In yet other cases it is necessary to undertake prolonged study which may involve laboratory examination of pus, skin, scalings, etc., or search for an allergen.

Some points in diagnosis are: (1) Particular area of skin involved. (2) Appearance of reaction, *e.g.*, redness, discrete border, etc., (3) Suggestive symptoms, *e.g.*, itchiness, pain, tenderness, etc. (4) Signs and symptoms in other organs, *e.g.*, the exanthemata. (5) Allergic symptoms in other organs. (6) Temperature, rapid pulse, etc. (7) History, presence of similar cases in family or district. Let us consider again our simplified classification of skin diseases, mentioning a few of those commonly met with as examples, and giving a few notes on treatment as we go along.

I.

1. Parasites. In this group a sensible procedure seems to be to kill the parasites without destroying or irritating the skin cells. Most cases of scabies are identical in appearance. Occasionally a certain type of allergic reaction resembles it closely. Fortunately sulphur ointment does not seem to greatly irritate the rare case of eczema on which it is mistakenly applied, but it does kill the parasites or scabies. The commoner of the other two or three conditions due to animal parasites are insect bites and pediculosis. Appropriate treatment is effective.

For practical purposes it does not seem to be essential to differentiate between the various fungi, the reaction to which are listed variously as trichophytosis, dermatophytosis, tinea, ringworm. Mercurials usually meet the requirements, as bi-chloride compresses or ammoniated mercury ointment, or both. Whitfield's ointment, chrysarobin, potassium permanganate, and some of the newer dyes also have their advocates.

2. Bacteria do not multiply readily in or on the outer layer of skin. It is possible that their presence helps maintain general body immunity (a sort of perpetual vaccine). Sometimes the bacteria reach the warmth and moisture of the dermis in sufficient numbers to multiply and cause reaction. The offenders are usually the cocci. The mercurials will generally clear up impetigo. Slightly deeper skin infections, accompanied by possible pus formation, are treated by cutaneous antiseptics, attention to diet, tin by mouth, manganese by injection, vaccines, etc. MacKenna wisely remarks: "Remember that weak or non-irritant antiseptics applied frequently are better than strong antiseptics which damage the skin more than the bacteria". May we express this idea in other words by recalling that the reaction of the skin is capable by itself of overcoming the offenders in many cases. We do not need to feel responsible for killing off all the bacteria present, but only to insist that they practise "birth control".

In all conditions it is well to remember that the reaction of the skin may be so much in the nature of an allergic condition that the line of treatment adopted will have to have more consideration for that aspect of the case than for the matter of killing off the offenders.

II.

1. Mechanical force sufficient to destroy the skin produces a wound, usually treated under the heading of surgery. "Dermatology",—knowledge and study of the skin as a living organ,—should be of great assistance to all who have to do with the healing of wounds. Some skins are hypersensitive to mechanical irritations, *e.g.*, dermatographism is a severe degree of this. Dermatitis is another type of reaction against mechanical trauma. Most cases of dermatitis are more or less hypersensitive to mechanical irritation and therefore one should avoid rubbing with a towel, scratching, etc. The writer has seen an eczematous area of skin which was completely dry develop a tiny rash which oozed serum in a few minutes after one rub over it with the finger.

2. Certain persons and certain skin areas are affected more than others by physical conditions, *e.g.*, heat or cold. It has been suggested that some cases of apparent drowning are due to cold allergy, hence allergic persons before swimming in cold water should be tested by immersing their hands in very cold water. Electricity may produce a dermatitis. X-rays can cause severe reaction when used improperly, and sometimes when used properly.

III.

1. When chemical substances externally applied are severely caustic, destruction of tissues result, just as when the abnormal force is applied, and the dermatologist may then need to refer the patient to a surgeon. A mild irritating drug produces more or less dermatitis and requires complete removal of the offender, soothing of the area from further insult, either chemical or physical, and avoidance of infection.

Another type of skin reaction occurs when any material comes in contact with a skin area which is hypersensitive to that particular substance. Then we have an allergic reaction which shows itself as urticaria, dermatitis, eczema, etc. The offending allergen may be almost anything, *e.g.*, bacteria, something connected with the patient's work, toilet preparations, clothing, plants, medicines, etc. These allergic reactions can be discussed in more detail a little later, suffice it to say here that the treatment of contact dermatitis and eczema includes removal of the causes and soothing of the irritated area.

2. The skin diseases which are caused by chemical substances, which reach the dermis from endogenous sources including (*a*) the exanthemata, (*b*) allergic dermatoses. Exanthemata are characterized definitely by skin reactions to toxins. Probably, for convenience, syphilis can be included with this group; but every skin rash in persons whose serological tests are positive is not due to lues. The patient is still susceptible to all the other ills that skin is heir to; *e.g.*, scabies, eczema, drug rashes, etc. It was well known to the "grannies" of a less scientific day that "when the rash comes out the child will be better". The steps they took to bring out the rash may not have been so ill-advised as many would have us believe. This recalls what has been said about the skin as a stimulator of the immunizing processes of the body. Is the rash in the exanthemata allergic or immunological or both; or are those conceptions mutually antagonistic? In their excellent book on scarlet fever the Dicks spend seven pages arguing that scarlet fever is not allergic, afterwards admitting that in a broad sense "allergy is manifest in practically all infectious diseases". In their anxiety to point out the importance of the toxin and antitoxin nature of scarlet fever they fail to notice that the two conceptions are not mutually antagonistic.

In an article of this kind there is no point in going into the theory of allergic diseases. In the allergic dermatoses the skin happens to be the sensitized or shock organ. Indeed in most of them it is only a certain area of the skin which has become sensitized. The group includes eczema, hives, angioneurotic œdema, purpura, erythema nodosum, etc. The sensitizing agents may reach the cells through external contacts or by way of the blood stream. In the latter case the antigen (or allergen) may reach the blood stream by absorption through some other part of the skin or through the mucous membranes, particularly those of the intestine. Various articles of food are therefore very commonly causes of this group of skin diseases.

Skin tests are not extremely important in discovering the allergen, as pointed out by several writers. For one thing the cases in which the skin tests are usually positive are

chiefly those in which the reaction follows ingestion of the offending substance so immediately that the patient (or in the case of a child its parents) already have noticed the connection, and so will report. But in a larger group the reaction is so delayed that the immediate causal connection is not noticed by the layman. Skin tests are very frequently negative. I would suggest that the probable cause of this situation is that in the latter group the substances to which the skin cells are sensitive is not the actual food itself but the result of its partial digestion, in other words, the clinical symptoms are caused by what is really a substance, chemically speaking, differing from the article of food from which it originates. If it were sufficiently important, probably some research worker could devise a method whereby we could imitate digestion of the common foods *in vitro* and thereby obtain a series of test reagents. Fortunately, however, the use of elimination diets is an extremely valuable method of discovering the food to which the patient is sensitive.

The existence of drug rashes was known to the profession long before the idea of allergy was developed. The association between the drug and the skin reaction is often sufficiently close in time to be evident either to the patient or to his physician, although sometimes the fact that a sensitivity has developed to a drug which the patient has been taking for a considerable period may be missed. No drugs are usually in general use very long before someone is able to report a case of allergic reaction to it. The writer has seen one extensive urticarial eruption following a course of sulfapyridine, and has reported a case of mild skin reaction to the ingestion of tablets of stilbœstrol.

The treatment of the allergic skin diseases includes such simple and logical procedures as removing the allergen, applications of soothing ointments, lotions, etc.; and the avoidance of irritating substances, or procedures which might not affect a healthy skin at all but which, in an area giving an allergic reaction, can be sufficiently strong to keep that reaction alight. It is also well to remember that psychology plays an important part in many skin conditions, particularly those of an allergic nature. It is claimed that while psychoneurosis may not initiate an allergic phenomenon the reaction having been once produced by an allergen may be reproduced by emotional or other psychic conditions.

SUMMARY

An attempt is made to provide a simplified classification of skin diseases. Without attempting to apply one of the several hundred names usually used in books on dermatology, the physician who follows this method will think to himself when he sees a skin condition; to which of the three types of irritants is the *living* skin reacting: (1) Living offenders. (2) Physical offenders; (3) Chemical offenders. If he can satisfactorily answer this question he is well on the way to having a good idea of the line of treatment which will relieve the condition. Some general ideas, as to method of diagnosis and treatment, are given to exemplify and further clarify the above three headings.

Case Report

LARGE BLADDER STONE IN YOUNG FEMALE

By James B. McClinton, M.B., B.Sc.Med.

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Taxis to the Forum centuries ago charged a fee according to the number of calculi in a box at the journey's end. A calculus fell through a slot every time the chariot wheels turned round.

Urinary calculi were discussed long before that.

Hippocrates in his code of ethics, which all doctors read and some follow, insists on their care being left to the surgeon.

In Lett's series of 279,569 cases at the London Hospital a stone occurred about once in every hundred surgical admissions. One-tenth were in children and more in those with dietary deficiencies. Men about fifty had the most. Old men eighty to ninety suffered few.

Vesical stones are rare in women. From 371 cases at St. Peter's Hospital only five were in females.

Large bladder stones are now uncommon on this continent. They are frequent in the Orient. Urinary stones are caused by obstruction, infection, disturbed metabolism of phosphorus or calcium, and likely by vitamin A deficiency.

The account of a huge bladder stone in a girl, age 19, should be of interest.

The patient suffered chills, frequency, vomiting and crampy abdominal pain, worse on walking. Two years before she had inserted a piece of wood into the urethra and lost it.

The abdomen was rigid and widely tender. Temperature 102°. The urine contained profuse pus cells with staphylococcus and streptococcus predominating. Rectal examination revealed a hard mass anteriorly.

A plain x-ray plate displayed a large bladder stone surrounding a foreign body. Lipiodol injected into the urethra partially surrounded the stone. Intravenous uroselectan demonstrated a left hydroureter and hydronephrosis. The blood calcium 10.1 mgm. and serum inorganic phosphorus 3.6 mgm., were on the border line.

Vitamins A and C were determined by Evelyn's photo-electric colorimeter; 31.6 units vitamin A were present. The normal is over 90 and deficiency is considered under 75. Each 100 c.c. of blood contained 0.2 mgm. of vitamin C, which is within scurvy limits.

After 32 days' treatment with alkalis, sulfa drugs and sedatives the temperature was normal. The pain on movement continued.

Under general anæsthesia I removed suprapubically a large stone which filled the empty bladder. It surrounded a piece of wood shaped like a carpenter's pencil. The stick lay crosswise and the ends were tucked close to the urethral orifices. The stone measured 8 x 9 cm. and weighed 70.5 grm. It assayed calcium oxide 23.8%, magnesium oxide 13.6%, phosphorus 39.3%.

The loss on ignition was 21%, which the analyst stated would include organic matter, ammonia, combined water and carbonates. The total nitrogen was 2.6%; likely urates.

Two months later the patient appeared in Noranda with loin pain, tenderness, and a hectic temperature. A perinephric abscess was diagnosed and drained by Dr. E. W. Linklater. Culture of the pus revealed staphylococcus, streptococcus and tubercle bacilli.

After a stormy convalescence she recovered sufficiently to leave hospital.

About three months later she appeared in Montreal where Dr. Magnus I. Seng diagnosed and removed a tuberculous kidney. He reports "she is up and about and apparently in good condition".

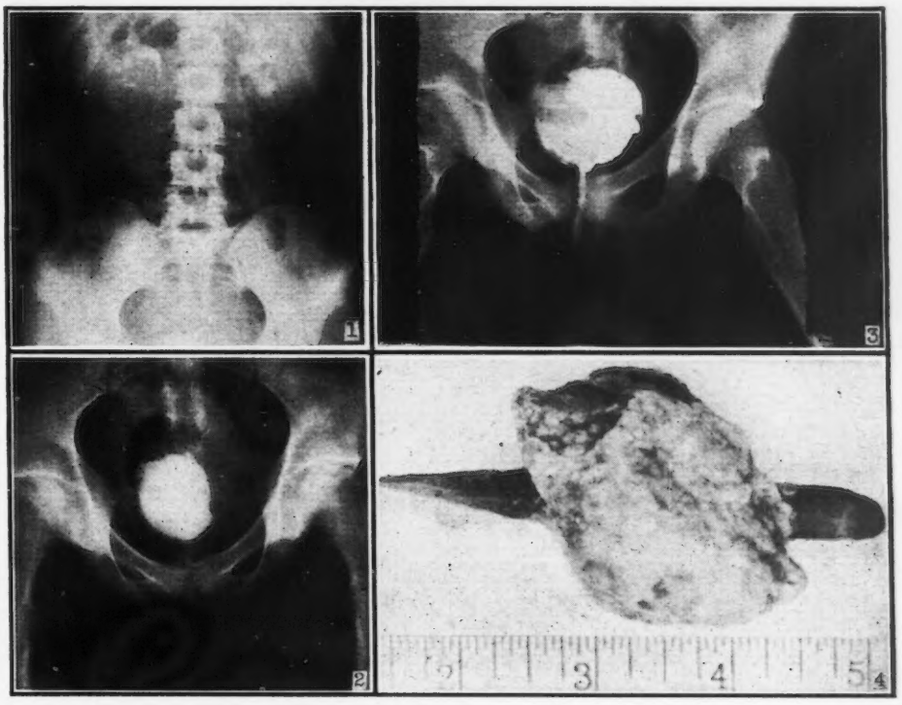

Fig. 1.—Stone in bladder. Left hydro nephrosis and hydro ureter. **Fig. 2.**—Bladder stone around foreign body. **Fig. 3.**—Bladder stone partially surrounded with lipiodol. **Fig. 4.**—Pathological specimen; bladder stone surrounding foreign body.

Apart from losing her stick and stone in Timmins, her pus in Noranda and her kidney in Montreal, the case is of interest because of the occurrence of a large bladder stone in a young female and its association with a self-inserted foreign body, low vitamin A, obstruction, borderline calcium and phosphorus values and the presence of tuberculosis with low vitamin C.

The rate of formation of stone in the human is hard to determine. Small stones can be produced in the gall bladder of animals in a few days.

Cameron[1] reports a case of a gall bladder drained and carefully examined without finding a stone. Eighty-six days after drainage a cholecystectomy revealed 38 calculi.

A hen can garment an egg with hard calcium shell in a day, and keep on doing it probably two hundred times a year. A stone can be precipitated in a test tube instantaneously.

This stone obviously formed in less than two years since it surrounded a foreign body implanted that long before.

I regret that I did not remove a small mite of the bladder mucosa to section for keratinization in view of the low vitamin A. I suggest that the mucosa might be sectioned and vitamin A determined in every case of open operation on the bladder, to confirm or disprove mucosal changes due to low vitamin A and relative to stone.

I am indebted to A. R. Bonham, Chief Provincial Analyst, Ontario, for chemical analysis, and to Professor Blaisdell of the Silicotic Research Laboratory for vitamin determination.

This case has also been carefully investigated by Dr. E. W. Linklater and Dr. Magnus I. Seng.

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Special Article

SCIENCE AND WAR*

By J. B. Collip, B.A., M.A., M.D., Ph.D., M.Sc., F.R.C.P.(Lond.), F.R.C.P.(C), F.R.S., F.R.S.C.

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War in its primitive stages was a clash of brute force against brute force but from early times weapons began to be devised and improved, and technical skill and ingenuity had their rewards even in the early stages of warfare. It may be said truly that in practically all of the major developments in weapons of warfare science and the scientific method have played a major rôle. Gunpowder, the rifle, artillery, the submarine, high explosives, the aeroplane, the tank, poison gas, to mention some of the more important weapons, have all had their origin as a result of the advancement of science. In his never-ending quest for truth the scientist has made discoveries, the application of which has completely altered the manner of living and the habits of life of many millions of persons, but, as Watson Davis recently said (*Nature*, 1943, **150:** 310) "Unfortunately the layman is usually oblivious to the scientific basis of our civilization until something goes wrong. To people without the vision and the power that experiment and interpretation of experiment bring, the universe is a static, unchanging, finished creation which nevertheless rushes on and leaves them hopelessly behind. That is what has happened and will happen to individuals or nations without the precious ferment of scientific research. All tradition and lore are hopeless before the onslaught of new ideas, whether those ideas project a Panzer attack or give a new mode of peaceful living to the world."

Although the weapons of warfare have been developed largely as a result of peace-time advances in the scientific field, and strategy and tactics have likewise been modified on the same basis, the scientists themselves with few exceptions until World War I have been used but sparingly during the actual period of hostilities. In World War I they were used to a greatly increased degree, but today, with total war upon the world, there can be no doubt that more than ever before in history this war is a contest between the brains, imagination, inventiveness and teamwork of the scientists and production workers of one group of nations pitted against those of another group. It is true that the decision ultimately will be made on the battlefield, the high seas and in the air, but it should follow that the fighting men who have the greatest resources of science, engineering and production back of them will be the victors.

I feel sure that our scientists as a whole realize this, and while great assistance to the war effort has been afforded by the close co-operation of scientific personnel with the armed services, there still remain many trained specialists who feel that their potential services have not been utilized to the full. There has indeed been among certain workers a feeling of frustration in that they have not been assigned a specific research relating to a war-time problem. Realizing as we do that the time factor is of necessity always a consideration in democratic procedure, I feel that we have reason to rejoice that the services of the scientist are being sought by the various branches of our armed forces and by our government departments. In this connection I would like to quote from an address by the Right Honourable Sir Stafford Cripps, given at a recent Conference on Planning in War and Peace, under the auspices of the Association of Scientific Workers (*Nature*, Feb. 6th, p. 153).

> "I think that our main difficulty with regard to the proper utilization of the scientists in this war has been our failure to realize at a sufficiently early stage that this was going to be a truly scientific war, and that the battle would not be won merely by the physical ascendancy of our race but rather by the ingenuity of those who have been trained in our secondary schools, technical colleges, and universities. This realization has gradually grown upon the country and we are now fully alive to the fact that our survival and our victory depend to a great extent upon the output of our scientists and our research institutions, and that everything must be done to utilize to the full that very high degree of scientific intelligence which Great Britain undoubtedly possesses.
>
> "We need not be too critical of the exact manner in which that scientific knowledge is made available, provided only that it is made available and that there are no difficulties from those who still, perhaps, fail to realize fully how great a part science must play.
>
> "The scientists of Great Britain have undoubtedly achieved the most remarkable progress during the years of the War, but we must do everything in our power to maintain the lead that we have gained; I know that, as in the past our scientists have without stint given their services and their devotion to the country so, too, in the future we can look to them for new implements and new devices which will make our salvation certain and will hasten our victory."

If time permitted I should like to discuss in detail the organization of science in relation to the war in Great Britain, in the Soviet Union and in the United States, and to contrast these methods with those operating in Canada. For those of you who are interested in this phase of the War effort I would refer you to *Nature*, February 20, p. 203. In Canada I think we are particularly fortunate in having through the medium of the National Research Council a channel through which Canadian Science in all its various branches can contribute directly to the War effort. Our National Research Council was an outgrowth from World War I. The late Professor A. B. Macallum, its first President, was instrumental in its inception. Later, Dr. H. M. Tory succeeded Dr. Macallum

*Presidential Address to the Royal Society of Canada at McMaster University, Hamilton, Ont., May 26, 1943.

as president, and under his ægis the Council Laboratories at Ottawa were built and equipped. Dr. Tory was in turn succeeded by Lieutenant-General A. G. L. McNaughton, who was called after the outbreak of hostilities to lead overseas the first division of the Canadian Expeditionary Force. When General McNaughton was called to active service in the Fall of 1939 it became necessary for the Council to nominate an Acting President. With one accord every member agreed that Dean C. J. MacKenzie was the logical man to assume this highly important task, and so Dean MacKenzie was duly elected to this office. As a humble member of the Council, but I am sure that I speak for all, I should like on this occasion to express to Dean MacKenzie great appreciation of the highly successful manner in which he has executed all of the various duties pertaining to this arduous post.

In peace time Science knows no international boundaries, the results of experimental work are freely published so that they may be made known at once to all who might be interested that they may thus be enabled to criticize, to modify and extend the breadth of knowledge in each small branch of every one of the numerous special fields of scientific endeavour. It is in this manner that the broad front of scientific knowledge has advanced. Great discoveries and inventions have been announced from time to time and the name or names of one or, at most, a few workers associated with these, whereas in practically all cases the discovery or invention has been possible only as a result of the unheralded pioneer work of perhaps scores of earlier workers, each one of whom played an essential rôle in the building of the basis of scientific fact from which the discovery or invention was an outgrowth.

While Science thrives in normal times by the absolute freedom of thought and expression and the free interchange of ideas and experimental results among its devotees, in war Science in so far as it can in new developments contribute even in the remotest way to the war effort must of necessity become cloaked in secrecy. The normal channels of intercommunication, the scientific journals, and the open forum of the convention floor must cease to be used for the discussion of anything having even the slightest potentialities of military application.

The scientist is by nature an individualist but when he turns his talent to war work he finds for the most part that group or team work must give place to personally directed effort if rapid solution of newly presented and urgent problems is to be had. This is indeed the explanation for the coming into being in war time of so many new committees, each of which has as the first item in its terms of reference the prosecution of research in some special field or the development of some basic principle with a view to its early application to some phase of offensive or defensive warfare. The committee method of directing and co-ordinating research and the concomitant team work of small or at times of large groups of research workers in war time has worked well. It has much to commend it and no doubt many of the lessons learned in the prosecution of the war research may be applied with profit when peace again returns.

Although the closing of many of the peacetime avenues of communication and interchange of scientific thought and development has been necessary for reasons of security during the period of the War, there nevertheless has been the freest exchange of secret and confidential information relating to war research between the different groups of workers in each special field, and liaison with the workers in the United States and Great Britain has been kept on a high level by the continuous exchange of reports and the frequent visits of experts from one country to each of the others.

Just as in peace time there is always a considerable interval between the time of the announcement of some new discovery or invention and of its wide usage as a result of large scale production by industry, so in war time the fruits of investigation by the scientist may not be applied in military operations for relatively long periods. It may be a matter of considerable disappointment to the scientist that this is so but this is inevitable and must be accepted. It is the business of the practical scientist in war time to develop and improve the implements of war and to give expert advice when requested to do so. It must be left to high military authority to decide on how, when and where any new development is to be used, if used at all. Air Chief-Marshall Sir Philip Joubert, (*Nature*, **151:** 204) remarked recently that from the military point of view the ideal is for the Services to state the need and to put the requirements to the scientific men for investigation, but that at no time should the latter exercise judgment over military matters. "The expert should be kept on tap—not on top."

ORGANIZATION OF MODERN WARFARE

Dr. Otto Eisenschiml (*Science*, **96:** 347) in a recent address has compared, rather aptly, the organization for modern warfare with that of so-called big business. The Civil War for example, he said, was Business, the first World War Big Business, and the present war Super-Business of such gigantic proportions that it almost passes comprehension.

In the application of science to warfare he has suggested that there must be, first, scientists of the imaginative type who envision things that have never happened before; second, specialists in the fields to which proposed new inventions and developments are related and who with the aid of a large staff of chemists, physicists, engineers, physicians, mechanics and others,

can translate visions into actualities, carry new ideas to completion, or decide definitely that to do so is impracticable; and third, the military staff officer corresponding in business to the distributor who must determine how the new development fits into the conduct of operations, and work out the details of its proper application.

War is so tragic, so inhumane, so destructive of moral as well as of material values, that it is difficult to see it other than in its blackest form. It is nevertheless true that scientific research has been stimulated to increased productiveness and output along at least practical and applied lines in past wars, and in the period of peace that followed this surge forward has been maintained and extended. In the interval between World War I and World War II the extension of scientific research in the Allied countries has been directed to conquests over the forces of nature, over ignorance, poverty and disease, and not, as in Germany, to preparations for conquest of other nations. The handicap to preparedness from a military standpoint under which the Allies found themselves in the general lack of application of the scientific advances of the period of peace, both qualitatively and quantitatively, to weapons and supplies for warfare, has been, we trust, by now well overcome. Many peacetime developments in the fields of chemistry and agriculture allowed of quick expansion in the scale of production of many essential materials such as plastics, synthetic textiles, dehydrated foods, high octane gasoline, aluminium, magnesium, and scores of other materials and products important to the war effort. The peacetime developments which made this possible were due very largely to organized scientific research in industrial, university and institutional laboratories.

RADIO- AND CHEMOTHERAPY

One of the fertile fields which physicists have cultivated so successfully in recent years has been radiology. Now this is of first rank in importance in the war effort. Speed of communication and transport on land, sea, and in the air, is the essence of modern warfare, and radiology in all its various branches and applications has been a most important factor contributing to the enormous strides that have been made in this broad field.

Certain of the advances in the field of medical research in peace time were also immediately applicable in the war effort. The most important of these were probably the relatively recent developments in chemotherapy.

Now in the fourth year of war science after a slow start has gradually become adjusted to contribute in an ever-increasing way to the war effort. Already many new and highly important contributions have been made, the details of which can be known only by a few. As the war continues this driving force of science will become ever more potent and in as far as the power within it lies it will to the end of hostilities direct its efforts to improving the weapons of warfare, to the maintenance of health and fitness of the fighting forces, to the better care and treatment of wounded, and to increasing efficiency on the home and production fronts by better attention to the physical and mental state of the workers and by improvement in methods of industrial and agricultural production.

All that matters now is the winning of the war. This must and surely will happen, and, if it does not take too long a time, we can look forward with confidence to the scientists turning the new knowledge that has been the outcome of war research to peacetime applications. Many new materials now in war production will have peacetime uses, and the experiences of wartime research will allow of the development in peace of finer and more useful products and services.

RUSSIAN SCIENCE

The great Russian physicist, Kapitsa, in a paper on "Science and War", recently published (*Science*, **95:** 396) has described how Russian science has adapted itself to war. His view of the general problem corresponds very closely with our own and since the Soviet Union is such an important member of the Allied Nations a short review of his article may be in order here. He states that war demands a maximum effort not only on the part of the armed forces but of industry, transport, agriculture and of creative scientific thinkers.

The whole Soviet people, including the scientists, understand well enough that only by straining themselves to the utmost can they drive out the hated invaders. They understand that the struggle now going on is one of life or death, and that the yoke of Fascism would not only turn the collective farmer into a serf under a German landlord, but would deprive the scientists of their freedom for creative work and of the joy of serving their country and world culture, and it is the realization of this that powerfully spurs their scientists onward in their war work.

Several of their mathematicians who before the war occupied themselves with profound and abstruse problems of mathematical theory, that held meaning only for a small number of contemporary persons, have now successfully centred their attention on immediate problems. One such problem is the application of the conclusions of the modern mathematical theory of probability to the calculation of trajectories of projectiles in flight, thereby improving the accuracy of gunfire.

The wartime work of Soviet scientists may be classified by trends. Some are engaged on problems of broad national-economic significance —the study of sources of raw materials, of substitutes, of utilization of waste products, etc. This work is of particular importance now that

they have lost much of their raw material sources and have had to shift their principal industries to the east. And finally, Kapitsa has great praise for the contribution of Soviet scientists to the success of their aviation.

MEDICINE

Having of necessity to devote the major part of my remarks to generalities in speaking on the subject which I have chosen, I would like now to refer briefly to the contribution which medical science and art have to make to the war effort. Medicine, having to deal in the main with the maintenance of the health and morale of the armed forces, has not been cloaked in secrecy to the same degree as in the case of physics, chemistry and engineering, and much of the investigational work which has been carried out under the ægis of special committees has been published.

It may be said that Medicine has a five-fold rôle to play in the war effort. (1) In the selection of suitable military personnel by excluding from the armed services the physically and mentally unfit. This called for the formulation of appropriate physical standards and the judicious interpretation of these by the examining officers who are called upon to accept or reject volunteers or selectees for enlistment. (2) Through the application of modern principles of sanitation and disease prevention, to protect against pestilence and to keep the military personnel as well as industrial workers in good health and physical conditions. (3) To give adequate medical attention and treatment to those unfortunate individuals, both military and civilian, who become disabled. (4) To assist in the rehabilitation of the permanently disabled. (5) By continued research to improve methods of treatment and to discover the fundamental principles of the etiology of disease with a view to its prevention, control, or eradication.

AVIATION MEDICINE

In regard to the latter division of activity of the medical group there has been no greater achievement of success than that of the Associate Committee on Aviation Medical Research. The Committee came into being as a direct result of the energetic activities of the late Sir Frederick Banting, and in the furtherance of the work of which he met such an untimely end. With foresight possessed by few he saw clearly the approach of the present world upheaval, and did all within his power possible to make his country prepared medically long before the outbreak of war. He saw clearly the great gap which had been created during the past two decades between the safe performance ability of the aeroplane made possible by the great advances in aeronautical engineering, and the ability of the human subject to tolerate the conditions of flight then envisaged.

If I may be allowed here to state some factual information relative to this, I am sure that you will appreciate all the more the great urgency as Sir Frederick saw it to get on rapidly with fundamental research in aviation medicine.

At an altitude of 12,000 feet, owing to low barometric pressure, man begins to suffer from an insufficient supply of oxygen and signs of physical and mental deterioration may become manifest. At altitudes of 25,000 to 30,000 feet the oxygen pressure falls to such a low level that life itself, at least for many, becomes impossible. At 40,000 feet even the breathing of pure oxygen fails to meet the needs of the situation. Certain of the modern aeroplanes are capable, however, of reaching heights considerably in excess of this level.

The speed of the modern fighter plane, especially in combat manœuvres, may be responsible for a variety of sudden changes in the equilibrium of the body, and these changes are capable of causing great disturbances of function.

Since the death of Sir Frederick Banting this committee, under the chairmanship of Colonel Duncan Graham, has carried on and achieved in a manner in keeping with the high ideals of its founder.

Clinical and Laboratory Notes

AN IMPROVISED SOUTHEY TUBE

By John A. McLaren, M.D.

Montreal

The shortage of special medical and surgical equipment has necessitated certain improvisations on the part of the physician or intern during the past 4 years. The need for a set of Southey's tubes led to the putting together of the following device in the Montreal General Hospital.

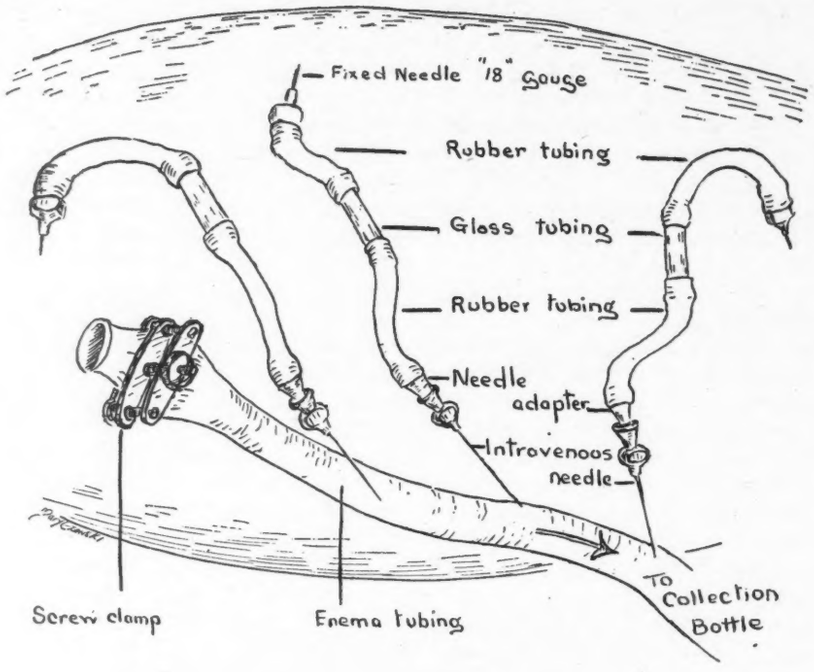
Due to the thrift of the nursing staff there were on the ward a number of connections from pneumococcus antiserum sets (Lederle) consisting of the following pieces: (*a*) two pieces of rubber tubing connected by a small glass tube; (*b*) on one end a small fixed needle, 18-gauge, with short bevel; (*c*) a metal adapter on the other end to which could be fitted an intravenous needle, 20-gauge, also supplied with the set. There were seven such units available. Other necessary equipment was a piece of enema tubing and a small screw clamp.

By fitting the intravenous needle to the adapter one had in effect a rubber tube with needles at each end. The enema tube was to

serve as a collection tube and the screw clamp merely closed off the upper end of it.

In setting up such tubes, the small 18-gauge needles were inserted subcutaneously at various points in the part to be drained, *e.g.*, the legs, and the intravenous needle placed in the enema tube at the appropriate place. The lower end of the enema tube was attached to a collection bottle. As long as the principles of gravity drainage were observed, the tubes functioned well.

In one patient with massive œdema of the lower extremities 1,000 c.c. were drained off in 24 hours. Later, because of penile and scrotal œdema they were placed subcutaneously in that area and 500 c.c. were drained in 1 hour.



IMPROVISED SOUTHEY'S TUBES

This device has proved as satisfactory as Southey's tubes and has one advantage, namely that the tubes may be placed at the most desirable points in the skin, and then connected at any point to the enema tubing as the length of the small unit demands.

Editorials

VENEREAL DISEASE CONTROL

THE exigencies of war have forced the people of Canada to face the problem of the venereal diseases and their control. The issue can no longer be ignored. There was evidence even before the onset of war that a growing social consciousness was uncovering this long neglected national tragedy. The acceleration of this pre-war trend has in a dramatic fashion, simultaneously throughout Canada, aroused the people and their governing agencies. The result is a situation unique in the annals of our national health, a united desire to overcome venereal disease.

The temper of the Canadian public was revealed by the sweeping affirmative response of citizens to a Gallup Poll on venereal disease held in May. It was evident that prudery and taboo had been cast aside and that the citizens overwhelmingly supported action. From the government standpoint, Federal and Provincial action and expenditure indicates an intention to come to grips with the problem. During the coming fiscal year, almost a million dollars will be spent by government health departments on venereal disease control. During the past three years increasing Provincial Health Department activity has been reflected in more personnel, improved statistical recording and the amendment of legislation. Federal Government participation in the national effort has been three fold; a unified program of control for the Navy, Army, Air Force and Department of Pensions and National Health; the provision of grants-in-aid to Provinces amounting to $175,000; and the re-establishment of the Federal Division of Venereal Disease Control. The timely initial action on the part of the people of Canada and their governing agencies augurs well for the future health of the nation, provided the action is sustained and augmented.

A comprehensive approach to the problem has been announced to the Special Committee on Social Security of the House of Commons. There is a place for every citizen

in the effort. A four-sector Canadian front against venereal disease is proposed. The individual components of this front are the health, welfare, legal and moral sectors. The ultimate object is to destroy syphilis and gonorrhœa.

On the health sector a six-point strategy has been planned. This strategy envisages the application of basic principles used in overcoming other communicable diseases. The six points in brief are as follows:

1. Wholesome, dignified health education concerning syphilis and gonorrhœa.
2. Adequate diagnostic and treatment facilities for all persons suffering from venereal disease.
3. The suppression of quackery and charlatanry in the treatment of venereal disease.
4. Early, adequate, prenatal care, including blood tests for expectant mothers, to prevent the tragic innocent infection of babies.
5. General health examination, including blood tests for syphilis, on a voluntary basis, before marriage.
6. Effective measures to deal with unhealthy community conditions associated with the spreading of venereal disease, and to deal with persons who wilfully or unwittingly promote these conditions.

The implementation and successful operation of this program depends very much upon the medical profession in Canada. The nature of venereal disease is such that most persons suffering from infection desire care in the privacy of their family physicians' offices. The extent of the problem is such that no physician in Canada can practise without syphilis crossing his path, in one of its protean manifestations. With the current intense interest on the part of the public in venereal disease, the physician can play an important rôle in the enlightenment of citizens concerning the importance of routine blood testing in all patients whether in office or in hospital, and most important of all, before marriage and early in every pregnancy. What physicians preach in this regard they must of necessity practise in the daily care of their patients. Recent advances in therapeutic procedures for syphilis and gonorrhœa are simplifying their management for the physician.

There is a growing consciousness among the medical profession in Canada that the public health implications of the infected individual are of paramount importance. Each physician is looking beyond the patient to the mechanism of spread of infection. The infected patient is a means to a greater end—the prevention of further spread of infection by finding the original contact. The physician's duty has only begun when he has made his diagnosis and adequately treated his patient. It ends when, after careful enquiry regarding the contact of his infected patient, he initiates action which finally brings the contact in for careful medical examination. This duty carried out daily in Canada by thousands of physicians is the greatest single contribution the medical profession can make to the ultimate eradication of venereal disease.

There is no greater single threat in the realm of health today than the venereal diseases, and no other professional group can take part more effectively in their control than can the medical profession.

D. H. WILLIAMS

CONTROL OF NARCOTIC SUPPLIES IN HOSPITALS

THE recently reported theft of a stock of narcotics from a Montreal hospital dispensary again emphasizes the necessity for the strictest precautionary measures in the custody of these drugs. Hospitals and pharmacies are in the traditionally weak position of defence only. The ever-watching and in his own way extremely clever narcotic thief is always on the offensive. At the same time the defences can be tightened up so as to reduce the possibility of theft to nil. A description of the system followed at one of the leading Montreal hospitals* may be of interest.

It is recognized that in a system for the control of narcotic supplies there are three main links which must be equally strong. These are: the pharmacy, the distribution from the pharmacy, and the wards.

The pharmacy is so guarded by barred windows and self-closing, self-locking doors, that it is impossible for other than authorized members of the staff to enter it. Narcotics as received from the supply house are carefully checked by the chief pharmacist and

* The Montreal General Hospital.

re-checked in his presence by an assistant. They are then placed in a fire-proof, burglar-proof safe, the combination of which is known only to the chief pharmacist, his chief assistant and the hospital administrator. The quantities of drugs received are entered in a ledger, with all details of amounts, dates and withdrawals. This allows of a perpetual inventory being set up, and this must be checked every 24 hours against the actual stock on hand.

As regards distribution, the first principle is that no narcotic, or compound thereof is to be issued from the pharmacy without a doctor's prescription. Ward stocks of morphine or other narcotics are obtainable only by the sisters in charge of wards (graduate nurses) on the presentation of the ward stock book, which will show that the previous stock has been expended. In the Montreal General Hospital where morphine solutions are used in preference to tablets, the empty or partially empty vial must be returned. The ward stock book is signed by the chief pharmacist and the sister in charge of the ward receiving the stock. This stock is kept at a minimum, as it is felt to be better to make frequent issues rather than carry comparatively large ward stocks.

On the wards, ward stock books are kept, with headings for names of patients, date, dose, time given, residue and signatures. The initial supply to the ward is entered in red as ward stock and any repeat issues are similarly entered. It is mandatory that when a narcotic is ordered the nurse giving it immediately fills in all the details required in the stock book and signs her name.

Ward stocks of narcotics are kept in separate, locked, specially constructed cupboards, the key of which is in the charge of the sister in charge of the ward. When she goes off duty she hands this over to her successor, together with the narcotic stock book, and at the same time checks the residue shown in the book with the amount in the vials. The relieving sister signs for this checked amount.

As this checking is done every twelve hours the possibility of irregularity is reduced to a minimum. It allows for inspection by the administration at any time, and also impresses on the staff the grave importance of proper control of narcotic supplies.

WARTIME FOOD DEVELOPMENTS IN GERMANY

DURING the war of 1914-18 Germans learned a lesson in the relationship between food and war which they have diligently applied, not without success, to the present struggle. "Food will win the war," is now a popular slogan. Starved Germany in 1918 knew how much more specifically and immediately true it is to say that lack of food will lose a war. In planning the present conflict German authorities took every care that no such catastrophe as the "turnip winter" of 1917-18 should ever happen again; and in their turn, in September, 1939, the Allied Powers re-established the blockade of Germany where it had been left off at the end of the last war, hoping by their previously well established methods once more to starve out the enemy. What has resulted from all this, and what the prospect is for the future, is reviewed in a pamphlet recently put out by the Food Research Institute of Stanford University.*

Prior to September 1939, Germany had had five years of experience in operating an agricultural program designed to promote self-sufficiency. This "battle of production" was especially needed to narrow the "fat gap" in Germany's food economy. The whole of agriculture was organized and regimented. At the outbreak of World War II the farm system could scarcely have been better prepared to play its important part. War brought very few modifications, nor has farm manpower been sacrificed to the needs of the German armed forces—an error which previously had had such grievous consequences. Where manpower has been withdrawn from agriculture the efficiency of output has been kept up by increasing mechanization of farming methods, until German agriculture has become very highly mechanized indeed.

There are additional factors to secure Germany's food situation. A thorough rationing scheme prevents all wastage and heavy penalties have kept the black market to a minimum. Some food has been available from occupied and satellite countries

* Wartime Food Developments in Germany, by Helen C. Farnsworth, 36 pp., 25c., Food Research Institute, Stanford University, California, 1942.

although this is a rapidly diminishing source. In the first year of the war Russia supplied large amounts, especially of fodder. This is now lost. The peak of food production was reached in 1940 and has been declining steadily, though not seriously, since. Diet has become much less interesting as shown by a large increase in potato consumption and a standard bread containing both rye and barley, but it is impossible to say whether the total number of food calories consumed *per capita* by the civilian population has or has not declined since the beginning of the war, though the presumption is that some reduction has taken place, at least over the past year. On the other hand any reduction that may have occurred has undoubtedly been small, particularly as compared with the reductions that took place during World War I when calorie intake fell from 3,000 in 1914 to 2,000 in 1918.

Growing conditions during three years of war have been exceptionally poor and have considerably reduced production. Better seasons can reasonably be expected, with a corresponding improvement in the food situation. This may be partially offset by the loss to Germany of their chief source of phosphates for fertilizer, which has been in North Africa in the Sfax area. However a review of all reliable information leaves little hope that Germany may not be able to continue feeding herself adequately, and even if conditions in Europe should become so bad that Germany must further reduce the food supply of occupied areas, as Marshal Goering has freely warned would be done if necessary, it is quite beyond any likelihood that serious shortage will extend to Germany itself. J.R.L.

Editorial Comments

The Use of Condensed and Evaporated Milk

Evaporated and condensed milk was added to the growing list of rationed foods in the United States on June 1. This restriction has not yet been put into force in Canada, but it may well be established before long. What scheme might be enforced we do not know but any planning of the kind should take into consideration the increased use of this form of milk in modern infant feeding. Where infant feeding formulæ have to be used this form of milk is strongly established in pædiatric practice. The many advantages associated with the use of canned milk are giving it a public health significance which should be widely appreciated. This has resulted from the recent advances in the improvement of milk supplies themselves and their processing. It may be difficult to estimate statistically how effective evaporated or condensed milk is in reducing milk-borne infection, but that its value exists is not to be gainsaid.

The Annual Meeting in 1944

We are glad to announce the decision of our Association to plan for a regular general annual meeting in 1944, with full scientific program. The meeting will be held in Toronto during the week of May 22.

This decision was arrived at only after careful consideration of the objections to increased travel. Conventions as a whole are not encouraged at present by the authorities, but we have been informed that, taking into account all the circumstances, we may make plans for our convention, always subject to modification or cancellation.

The justification for this decision lies in the recognized value of our scientific sessions. Naturally there will be a strong military flavour to the subjects discussed in these times, but all sections will receive attention. It is hoped that the program will contain many contributions from members on active service.

The Meyers Memorial

The Canadian Medical Association receives the sum of $100.00 a year from the estate of the late Dr. Campbell D. Meyers of Toronto to provide an honorarium known as the Meyers Memorial.

The award is made in accordance with the instructions of the donor, which are:

1. That the award shall be made " . . . to such member or guest of the Canadian or of one of the Provincial Medical Associations as shall write and read at the annual meeting of any of the said Associations the best thesis or dissertation . . ."

2. That the subject shall be " . . . the study and treatment of those functional neuroses which, if untreated, or not treated sufficiently early might probably terminate in insanity . . ."

". . . it is impossible to classify definitely the type of diseases referred to above. I desire however to refer to those Functional Neuroses in which the psychological symptoms form the essential part of the syndrome, and to that type of Neurosis which develops in late adolescent or in adult life in a patient of previous good mental and nervous history, especially such neurosis as has its etiology in emotional overstrain caused by excessive grief, worry and allied conditions . . ."

"I desire to exclude from this thesis the study of Mental Defectives, paranoia and similar conditions of mental disease due to hereditary or organic states . . ."

3. That the award shall be made " . . . by a Committee consisting of the President, a physician and a neurologist . . ."

Anyone wishing to submit a thesis is advised to confer in advance with the Chairman of the Meyers Memorial Committee (through the office of the Canadian Medical Association) in order to make sure that his thesis will come within the terms of the award.

The thesis must be in the hands of the Chairman of the Meyers Memorial Committee on or before May 31 if it is to be considered for the award of that year and should be forwarded to him at 184 College Street, Toronto. Any thesis received after May 31 will be considered as being submitted for the following year.

Erratum

In the August issue, in the abstract of Dr. Bunim's article, page 145, the second last sentence should read. "Labour was terminated in every case after the use of local block anæsthesia, and the average length of time from injection to the birth of the child was 21½ minutes."

Medical Economics

PLANS FOR A NEW HEALTH SERVICE

By Charles Hill, M.D., D.P.H.

[*Deputy Secretary, British Medical Association*

In February, 1943, Britain's Government committed itself to a comprehensive health service available to every member of the community whatever his income. It did it by accepting Assumption B of the Beveridge Report:

"Comprehensive health and rehabilitation service for prevention and cure of disease and restoration of capacity for work, available to all members of the community."

Here are the Government spokesman's actual words, spoken by Sir John Anderson in the House of Commons on February 16, 1943:

"The object is to secure through a public, organized and regulated service, that every man, woman and child who wants it can obtain easily and readily, the whole range of medical advice and attention, through the general practitioner, the hospital and every related branch of professional up-to-date methods. . . The idea of the new service must be one of the co-operation of public authorities, voluntary hospitals and other voluntary agencies, and the profession, towards one common end. There must be no doctrinaire scrapping of good existing resources, nor must there be overlapping. . . Nevertheless the responsibility for seeing that in any area the service is full and efficient must be on one ultimately responsible to public authority."

This statement made, the Minister of Health began informal and exploratory discussions with representatives of the doctors, the local health authorities and the voluntary hospitals on the ways and means of converting this promise into action. The thinking, the planning, and indeed the legislating, are on the Government's present program, to be done now so that the comprehensive scheme may be introduced immediately after the war.

Part of Local Governments

What is the position today? For more than a quarter of a century there has been in existence a National Health Insurance Service, providing for 20 millions of the population a general practitioners' service, and the usual medicines and appliances. Its benefits are limited to manual workers and to salaried workers receiving less than £420 a year. The insured man pay 5½d. a week, his employer pays 5½d. a week, and the State adds a proportion. The money goes to pay doctors, to provide the necessary medicines and appliances, and to provide a weekly cash payment when the insured person is ill. The balance is used to provide additional medical services and appliances, and for troubles of the eye and the teeth.

But it is only the breadwinners who are covered by this scheme. When their wives and children need the services of the doctor they, like others not covered by the scheme, pay for them as and when they need them. National Health Insurance, despite its early growing pains and despite its present limitations, has proved a great success.

The country's hospital services are provided in part by voluntary effort and in part by the State. The number of beds provided and maintained by public authorities greatly outnumber those provided and maintained by voluntary effort. The hospital beds for the acutely ill are mainly the concern of the voluntary hospitals, most of them institutions of great antiquity and high traditions of efficient and humanitarian service.

In recent years the institutions administered by our democratically elected local government bodies have, in many parts of the country, greatly improved both in quality and in range of service. Indeed, in some large towns they reach the standards of our best voluntary hospitals. And it should be remembered that it was only in 1930 that they were enabled to escape from the stigma of an association with the Poor Law, and so develop as general hospitals in the fullest sense.

PERSONAL HEALTH SERVICES

But the State's provision is not limited to National Health Insurance and to local authority hospitals. It is roughly true that forty years ago the State confined its interest in national health to the protection of the community from the ravages of infectious disease and the abatement of the grosser dangers to communal health. At the beginning of this century, it began to interest itself in personal health services. As the years went on it made provision for the mother and the infant, the school child and for those of all ages suffering from certain diseases. Between the wars it continued steadily to increase and to extend its health and sickness activities. Usually it has worked its will in health matters by imposing powers or duties or both on locally elected bodies, stimulating them to activity by grants of money from central funds.

Despite the range of State and voluntary provision, the position today is still not satisfactory. Development has tended to be piecemeal and fragmentary. The public, though well served in the aggregate, obtains its health services from unrelated and sometimes competitive agencies. The individual may pass from the local authority to a voluntary body, from a private consulting room to clinic or hospital, from private doctor to official doctor, and often back again to obtain from many agencies a service which could be more efficiently provided as one co-ordinated whole.

Some services are available to one citizen but not to another. Some serve the citizen at home while others are prevented from doing so. Some services he obtains at public expense, while others he must pay for privately.

SWEEPING CHANGES IN MEDICAL ORGANIZATION

For some years there has been realized the need to secure co-ordination and co-operation in an integrated national policy of health. As long ago as 1929 the medical profession, through its organized body, the British Medical Association, urged a co-ordinated and inclusive scheme of medical service available to 90% of the population. Their first principle was that a system of medical service should be provided directed towards the achievement of positive health and to the prevention of disease, no less than to the relief of sickness.

Health, they argued, was something more than the absence of disease. The emphasis should rest on the positive prosecution of measures to maintain and enhance both mental and physical health.

But by 1939, despite the liveliest public interest in matters of health, the co-ordination and unification of existing services had not yet arrived. In 1942, the Medical Planning Commission of the medical profession published its Interim Report, giving general approval to some sweeping changes in medical organization. Then, in late 1942, came the Beveridge Report. Its author, Sir William Beveridge, built his structure on three assumptions, with Assumption B as the second.

But Sir William Beveridge did not take the matter of health services much further than this. He was confronted with problems of social insurance. It was not his job, he pointed out, to recommend the form or the nature of the proposed health and rehabilitation service. His investigations led him to the conclusion that it should embrace prevention as well as cure, rehabilitation as well as treatment, and that it should be available to the whole community.

THE GOVERNMENT PLAN

This is the place at which the Government took up the thread, following the February announcement of the Government's first reactions to the Report. The plan is now being worked out in detail. It is known that the Government hopes to publish its tentative proposals in the form of a White Paper within the next two or three months, though there are signs that its preparation may take longer than at first expected.

The hammering out of the form of the medical service of tomorrow will not be easy. It is no secret that departmental officials favour the health centre, linked with the hospital, as the focus of future medical practice. They favour the grouping of local authorities for health purposes and the assumption by such grouped authorities of heavy responsibilities, including the responsibility for employing the doctors.

The Labour Party has already announced its policy. In brief, it urges the establishment of a whole-time salaried service of doctors working at hospitals and health centres, provided or subsidized by the State. It goes the whole hog, preferring not to build on existing foundations but to create a new machinery. It contemplates the early disappearance of private practice and the gradual disappearance of the voluntary principle in hospital provision. It would provide the service free, that is, the State would bear the whole cost.

THE DOCTORS' REACTIONS

Obviously, important issues are involved for the public as for the doctors. Is it in the public interest that the doctor should become the servant of the State? Do the advantages outweigh the disadvantages?

A complete national medical service does not necessarily mean that doctors should become salaried civil servants. Indeed, the majority of doctors do not like that project. They see in it the loss of their independence, the replacement of an independent profession by a group of State servants.

Some doctors want a whole-time salaried State medical service. They argue that medicine, like education, is a function of the State.

As every child is entitled to free education at the country's schools, every citizen should be entitled to free medical care at its hospitals and clinics. Of course, nothing is free, for someone must pay so that the State can pay. But it would be free at the time, and lack of money would never stand between a patient and the medical help he needed. Medicine should be nationally controlled, the argument runs, with the doctors as the servants of the State.

The others, and they are the majority, agree that the medical service of the future should be nationally planned. But they do not agree that that need or should mean direct employment by the State of the doctors on a salaried basis. The State, they say, should be the community's servant, not its master. They fear that in a whole-time salaried service, politics both national and local will play a part in the management of the health services. That they judge would be disastrous. They fear what they call "the cold hand of bureaucracy" on the warm pulse of a vital and active profession. They fear a profession of safe men in a world which demands virile and independent minds.

THE PERSONAL ELEMENT

It may be necessary in time of war, they argue, for the State to intervene in the rights of its citizens, controlling their comings and goings, their eating and their drinking. But what is necessary in war is not always desirable in times of peace. The State should in peacetime intervene only to the extent to which intervention is necessary.

Individuality, they say, is a flower of great delicacy, unlikely to flourish in the atmosphere of bureaucracy. The patient, not the bureaucrat, should choose and employ the doctor of his choice. He alone can judge the virtue or lack of virtue of his doctor. Replace the patient by an official or a committee as a judge of what the doctor is worth to him, and the community of patients is the worse off. So runs the argument. Medicine is a profession in which freedom has flourished to the benefit of humanity. Turn it into a civil service of the State, and medicine would cease to attract the abler men of each generation.

But it should not be thought that the opponents of the salaried method of employing doctors under the State do not recognize that the State should be paramount in matters of health. They do. Only with the support of the State can be provided what is needed in the way of hospitals, and clinics, and instruments, and drugs. The State should support research into new cures. The State must control epidemics and guard our ports. The State must guarantee that everyone can get what he needs in the way of medical care.

Doctors think, not unnaturally, that doctors should play a big part in the administration of so personal a service.

Success and the prospect of success stimulates doctors as well as other men. The judge of that success should be not a Government or a Committee, but the patient himself. The patient should be free to go to another doctor, and the doctor should be remunerated in proportion to the work he does and to the patients who choose him. Though the State should provide the service, doctors and patients should manage it.

INDEPENDENCE AND REGIMENTATION

In brief, the doctors seek a compromise between independence and regimentation. They know that no medical service can be efficient without the backing of the State with all its resources. They know that the State is entitled to require from doctors high standards of work. They recognize that to every citizen there must be available every sort of medical care he needs, whether he can pay for it or not.

What they, or at least the majority, ask is that there should be retained free choice of doctor and the largest possible degree of freedom and independence within the framework erected by the State. Given these conditions as guarantees, they will go a long way on the path to State medicine.

But the final decision lies with the public. As yet the public has not had the opportunity of considering the form of the new health service. It wants a comprehensive service open to all. Until the present phase of private consultation has ended and until the White Paper is put out for public debate, the public must reserve its judgment.

A BRIEF ON INDUSTRIAL HEALTH

Presented to the Special Committee on Social Security of the House of Commons by the Industrial Medicine Committee of the Canadian Medical Association

The considerable body of factory legislation enacted since the industrial revolution has been directed mainly to the protection of the health of workers in industry. It took the stress of the last war to precipitate in Great Britain the first organized scientific enquiry on the subject. The findings at that time and since have emphasized the importance of this legislation in the interests of industry and the country alike.

The first factory legislation directed to the state of *individual* health came in 1911 when periodic physical examination was required in certain dangerous trades to detect early evidence of poisoning, as a safeguard against the failure of mechanical means for the control of dust and fumes. This marks roughly in the industrial health field what occurred in community health; the progress from purely protective measures to the more positive outlook on health, its upbuilding and maintenance. How-

ever, its immediate significance rested in the extension of preventive measures beyond purely environmental considerations, to take account of the physical condition of the individual, which has since characterized health conservation in all age groups. This is important particularly for adults, since such control of general sickness as is possible in this group, lies mainly in early diagnosis and advice, not only for minor conditions, but for such as cancer, heart disease, pernicious anæmia, and diabetes as well. The procedure is more readily applied to groups and herein lies industry's opportunity.

In manufacturing industry alone in Canada, 35,000 employees are absent from work daily on account of sickness. Large additional numbers of persons are at work although suffering some ill-health. There is ten times as much absence from sickness as from industrial accidents, so that a reduction of only 10% in sickness would be equivalent to the elimination of industrial accidents as far as lost time is concerned. Much more than *lost time* is involved, but to some extent it can be used as a measure of what exists.

There is sufficient evidence for the statement that even under schemes for the care of sickness where pre-payment is made, adults do not avail themselves of the services provided as early as is necessary for the most effective control of ill-health. Accessibility and convenience are important as well. Industry and commerce make it possible to bring health services to groups where early diagnosis of disease and defect can be initiated with a view to correction. The procedure is not new, and requires no additional demonstration of its value. Many factories, particularly larger ones here and elsewhere, have instituted these health services. There are about 300,000 employees in such factories in Canada enjoying some degree of health supervision of this type.

THE PROGRAM

In Great Britain in 1940 legislation provided that the Minister might require war industries to employ such physicians and nurses as may be necessary for "the medical supervision of persons employed in the factory, and for nursing and first-aid services for such persons". The program does not cover active treatment of disease, rendering only such treatment as may be necessary at the factory. It involves physical examination for guidance in placement at suitable work; encouragement to employees to report to the factory dispensary with minor complaints of ill-health, which, supplemented by periodic physical examination provides opportunity for early diagnosis; observation of the employee at his work and of the conditions of work during regular tours of the factory, directed partly to the control of occupational diseases; education in health practices; care of accidents, and rehabilitation after accident or sickness in collaboration with the family physician. The term "Health Supervision" is here used to designate this program.

THE EMPLOYEE AND EMPLOYER

From the employees' standpoint, the general level of health is raised. He receives advice on the need for treatment, and has the benefit of the effort of those in the factory whose definite responsibility it is to safeguard health. The response of employees to such facilities has been nearly always immediate, and large enough to warrant the conclusion that a definite demand exists. The interest aroused in the employee at work influences his attitude to the subject of health in his home.

The maintenance of health in wage earners can only result in benefit to industry; in fact, the costs associated with training new employees, including their higher accident experience, the replacement of those who are temporarily absent and other indirect expense, have been sufficient to warrant many employers instituting such services voluntarily. Close supervision from within the factory is exercised over all conditions of work which may affect health, and better mutual understanding of the problems of employer and employee is engendered, contributing to an improvement in industrial relations.

THE PHYSICIAN AND THE NURSE

From the medical viewpoint, the opportunity is provided to apply the principles of preventive medicine to personal and environmental health in one of the largest and most productive groups in the community, and to observe closely the development of disease in adults. The industrial physician knows the workman at his work and has access to indications of ill-health at an early stage. He can crystallize the efforts for better health made by voluntary and official health agencies which work from outside industry. In such manner conditions like tuberculosis, malnutrition, venereal disease, occupational diseases, fatigue and maladjustment at work can be observed early and appropriate action taken.

THE COMMUNITY

An increasing percentage of the total population falls in the adult age groups, and the maintenance of health in these depends in a large measure on this early recognition of disease. Periodic physical examination is directed to this end, but its application has been largely limited to its use in industry, partly because here it can be brought to groups of individuals. The further approach to more effective conservation of health in adults can most logically be made through industry. While a considerable section of the population is engaged in agriculture and other pursuits which do not render them so accessible from this standpoint, the

program is no less effective where it can be applied. It is necessary in time of war, when the number of women and of handicapped workers employed is much greater and when maximum effort is invoked, that this "running" supervision of personal and environmental health should exist, but it should be continued into the post-war period to a still greater degree than may be possible at present, considering the availability of medical personnel.

HEALTH INSURANCE AND INDUSTRIAL HEALTH

It is important that the program for health supervision in industry be closely integrated with any provision for National Health Insurance. Industrial medicine undertakes to maintain health in a large section of the adult population. It is essentially a preventive service carried out mostly by practising physicians working in industry on a part-time retainer basis. The industrial physician initiates measures conducive to good health. He is diagnostician and health officer to the factory group. Upon access to this group depends his usefulness in this capacity. This access has been limited. Health insurance enactments elsewhere have taken no account of this, partly because industrial medicine has had its greatest development in recent years. It is looked upon as a service which should be developed by industry itself, with suitable technical advice.

Section 5 of the Draft Bill indicates that the statutory provision regarding public health shall include activities enumerated in Schedule 3. Schedule 3 under the heading of "Industrial Hygiene" includes "supervision of . . . medical and nursing services . . . relating to the health and welfare of industrial and other workers." There is, however, no clause in the "Bill" ensuring that these medical and nursing services will be provided. At present their provision depends upon the individual employer's interest and insight into the value of maintaining the general health of employees, even though wages cease when the workman is absent on account of illness. The same considerations govern also the adequacy of the program carried out, so that marked variations occur in the amount and kind of medical personnel used for preventive purposes in relation to the number of employees.

RECOMMENDATIONS

1. That special provision be made whereby the maintenance of health and the control of general sickness of industrial workers are closely integrated with any health insurance plan adopted. This is additional to the treatment of disease when it supervenes, and to the protection for employees afforded by existing Factory and Workmen's Compensation Acts.

2. That all industries with more than one hundred employees be required to establish and maintain medical services for the improvement of health. Federal Order-in-Council No. 1550 under authority of the War Measures Act, now requires that in any war industry under contract to the Dominion Government, there shall be "medical, surgical, nursing and preventive services" to the satisfaction of the Minister. It is desirable that those working in factories and elsewhere, in groups of less than one hundred employees, receive similar benefit as it becomes practicable.

3. That this health supervision provided by industry meet the requirements of the Provincial Health authorities on such matters as the extent of the program, the use of trained personnel, and securing the confidential nature of medical records.

4. That a part of the medical cost of health supervision in these groups of workers be paid, on a per employee basis, from the Health Insurance Fund, to each employer who meets the requirements. The benefits to be derived are not limited to industry, but extend to the community as a whole.

5. That these provisions be incorporated in the Health Act.

Men and Books

DE PROPAGANDA FIDE*

By Foster Kennedy, M.D.

Professor of Neurology, Cornell University Medical College; Past President, American Neurological Association

When one thinks of propaganda, as one does every day now, there comes to one's mind the quip of the civilian Roman senator who told his military colleague across the floor of the Senate that if he were given an ass saddled with two paniers of gold, he would undertake to capture any city! And Germany has spent between three and four hundred millions every year since 1935, for that idea.

The word "propaganda" is an odd one. I thought it might be a Latin neuter. I thought it might be a gerund. I looked it up before coming here. It was not very enterprising of me that I never looked it up before. Fowler says it is a telescoped Latin brevity, shorthand for a phrase that first appeared in the Middle Ages as the title of an organization of the 15th century: "Congregatio de Propaganda Fide"—The Association for the Propagation of the Faith. Words go through "ups and downs" in social life. My grandfather, if he wished to say that a women was a lady and well-bred, would have said that she was very "genteel". If we were to say that anybody was very genteel now we would be saying practically the opposite of what my grandfather would have

* An address given before the Summer School of the Vancouver Medical Association, June 22, 1943.

meant. "Genteel" has gone down in the social scale. So has "propaganda". Propaganda has gone down with use, largely because we were exposed to what in many instances we found to be lies.

I was amused in 1937 when a taxi driver in Berlin, thinking I did not know the city, insisted on pointing out the various buildings; he showed me the Ministry of War, the Ministry of Navy, the Ministry of Foreign Affairs, and then he pointed out the Ministry of Propaganda. In 1937 I had never seen the outside of a Ministry of Propaganda and I was amused at the matter of fact way in which the taximan had accepted the fact of its existence.

But, as I have said, there can be propaganda *for the faith;* that is what we must have. If we cannot raise the social status of the word "propaganda" we must use some other word. It is important to get a *word,* for, on the whole, men do not live so much by bread, as by catchwords. Catchwords are the stuff to remove the need of thinking. It has been said that depressed people do not like to think. I do not see why it should be "depressed" people. Everybody tries to avoid thinking—just as much as possible. The process is painful. We do not mind living in daydreams, and woolgathering, and chatter; but to think!—that is the hardest thing the human animal does, and he avoids it when he can. So we can be exposed to suggestion. We hear "suggestion" bandied about a great deal, without anybody quite understanding what it is. I always describe suggestion "as the acceptance of an idea, already in consonance with previouslv established emotional trends". That is to say, it is like hitting a baseball the way it is going, instead of the way it is coming. And you remember what was said to Alice in *Through the Looking Glass* that "Everything I say three times is true". The third time you hear something you begin to believe it, even if it be nonsense. Most of the newspapers have built their fortunes on this. (If you really dig through *Alice in Wonderland* you will get a great deal of wisdom.) We have always a quick, uncritical acceptance of an idea in consonance with an already established emotional trend. Should we hope and be afraid, we over-readily believe in our security and in our victory.

The Germans early in the war, in October, 1939, danced in the streets and gave everybody schnapps because of the false rumour of an armistice. They thought their nightmare of war was over. If we hate, we believe almost any evil of those we hate. If we envy, we listen readily to malice. If we love, we can only hear good things of those we love. And if we are afraid and be lily-livered, we tremble before the radioed rumour, and the innuendoes and half threats from the Artificer of Fraud.

Our standards of personal dependence on the sturdy virtue of our individual opinions have been weakened through the assault on imaginative reason. We have seen it going on in the world for forty years. You see in modern activities an effort everywhere to demote intellectual authority. For example, in psychology, we have over much beaten the drum of the subconscious, to drown the still small voice of the intellect. The drum said "You don't really think what you think; You think what you think you don't think!" In painting, the discipline of drawing has been exchanged for meaningless crazed abstractions. Much the same may be said about most modern music since about 1911; it is either a cacophony of fire irons descending a nude staircase, or a sentimental crooned aphrodisiac to impotent youth. And in literature, compare the style of our modern writers with the Letters of Junius. Perhaps Winston Churchill is like Lincoln. Lincoln had to speak in Stuart English, for he knew four books, Blackstone, Bunyan, the Bible, and Shakespeare, all by heart, so he talked Stuart English having learned no other. Perhaps Churchill's style is founded on the same books. The impertinent idiocies, for instance, of Gertrude Stein, James Joyce, e. e. cummings, —folk like that—are far less important than are the lack of judgment, the lack of independent personal opinion, the lack of reverence for the great tradition of language present in many half educated and wholly uninstructed persons who take such "advertising" seriously. People have feared to admire or condemn on their own hook a play or a book until they have read the, often foolish, criticism of the critics. The smattering of education to which we have all been exposed has lowered the sturdy critical faculty we inherited. Words and facts, therefore, have held people in jeopardy and suspense, partly by dint of not being precise. We have lacked individual judgment with which to fight evil generalities.

Now, all things in the physical, chemical or natural world exist as a more or less unstable equilibrium between opposing forces. We ourselves maintain health and well-being in our bodies by reason of the balance between the accelerators and the brakes of the pressor and depressor systems. Since law runs absolute in the universe, there is in the realm of morals and behaviour, the same opposition of positive and negative power. There *is* an ultimate Good and there *is* an ultimate Evil. We have been swimming in a solution of relativity in these matters, and because we weakened in our critical judgment regarding them we became the prey and ready victim of the constant impact of evil counsel, and of lies, made to destroy us. Through lowered power of personal judgment we swayed for years on the knife edge of indecision. But indecision locks up energy; it stabs the heart; whereas decision clearly taken, brings calmness, strength, the quiet mind and a flow of power. It is so in every human experience; and since men make nations it is so in national

life, in the field of battle, and in the field of civil living.

If one be unaware of the stream of history, of the fall and rise of energy in nations, then one can be, by successive crises, shaken and made afraid. A man must have within himself a quiet place wherein he lives, however torn seemingly he may be by the passions of the world. That is his citadel which must be kept inviolate against assault. That quiet place must be founded upon a rock, and the rock must be a belief, a fervent and passionate belief, in the existence of the ultimate Good and willingness to put forth his strength against the ultimate Evil. Only by so doing, can he tap the flow of power needed to produce between one nation and another the same natural impulse for helping each other, the same natural acceptance of law and of legal procedure that obtains at present between people walking together in a city street. We must transfer to the national units of the world the same reign of law and helpfulness that now exists between individuals; as was said by Spinoza "there is nothing more serviceable to man,—than man". It is an evidence of weak growth that we could ever have put up with a standard of national behaviour that we would not think of tolerating in personal conduct.

Now the decision of war has been made by those who lead and by those who follow. Energy for this high adventure has been poured into us. Again one must say, by decision, power has come. The lamp in the uplifed arm of our Statue of Liberty must be guarded by ourselves. Evil and wicked men in many vast and powerful countries are trying to snuff it out. If they should overcome our friends, who think of life as we do, we could not survive, to live our own way alone. So, we must believe good things of our leaders who plan our courses, think well of our friends who die in the same battle we are fighting. To die, is much the same, after all, for a Chinese, a Russian, an Englishman, a Hollander, or an American. And greater love hath no man than this: to lay down his life for his friend. We have at last found in our country, a unity of will and of heart and of class against which no ruse or trick or lie can avail at all. America is called to arms, a noble and most honourable occupation.

Priestley, speaking of his own country of Britain, said that the Nazis have done everything possible to paralyze opposition by "invading the emotions and the imagination of the more sensitive minds, suggesting a dark host of fears and terrors, creating a smoke screen of defeatism. But, fortunately, the British are not a very impressionable people. The ordinary folk are probably the hardest to rattle or to panic in the world. They are not very imaginative; a free and easy complacent people." And, one may add, they have the inestimable advantage, by social custom, of not being allowed to show fear, however much they be afraid.

The majority of Americans have detested Fascism and all it stands for; but apathy long stopped action, indecision stabbed the heart and locked up power. The adrenalin that would have girded us for the battle, in the absence of battle frittered away the energy of the nervous system and made for us a world of jibbering shapes where the witches rode.

What seems to be the weakness of American political life which lowered resistance to the Fascist affront in our minds? First, there was a lack of intellectual comprehension of the issues at stake; second, large parts of our people lacked active interest in political affairs; third, corruption in many municipal offices made the name "politics" a mere term of abuse, fourth, maleducation in history, and almost no education in world geography. In speaking of the attitude, before Pearl Harbour, of many of our, what used to be called "privileged fellow citizens", Buell in his *Isolated America* quoted a bit of slang of particular significance: "Don't stick your neck out". Those five little words were the core of defeatism, the signs and symptoms of which always are egotism, fear, anxiety, panic, lack of self-respect. If democracy continues to think in terms of a scramble for privilege, without reciprocal obligation, if our psychology persists in reducing man to his lowest common denominator, tries to explain his poetry by way of his perversions, and identifies self-indulgence with self-expression, then we have fled the deeply religious idea of personality, and the democratic duty of each man to train himself to betterment. Rugged sturdiness gets exchanged for indolence, a clean shave for a safety razor, — even an electric razor. The American "pioneer spirit" gets swamped in insurance coupons payable "to the third and fourth generation of those who will love and call us blessed".

I said "no education in geography". I have stressed that purposely. In very many of our States I find that whether you go to Sarah Lawrence or Radcliffe or Miss Chapin's, or to Groton or St. Paul's, or any of them, or whether you go to the smallest public school in America, you are not asked to read a map or to learn it by heart after the age of eleven and one-half. Can you deny it? As a teacher, I have always been interested in education. I contend that when 134 million people have never seen a map —unless they have a passion for maps—since the age of eleven and one-half, they cannot possibly be expected to know a map at twenty-two. This sounds like scolding, but I assure you that it is a fundamental thing. It occurs in no other country. When I went up to my matriculation examination at the University of Dublin, there were two little items that I saw, of just two words each in the examination prospectus. The other subjects had more description attached to

them—how much history, etc. But these two said "all arithmetic" and "all geography". That was in order to obtain admission to any university.

Of course, people who do not know the maps cannot but feel a sense of living, like Mohammed's coffin, between earth and heaven. Such a position is bound to give one a sense of great security against attack from either earth or sky. It is bound to enable us to swallow the absurdities that Lindbergh put before 25,000 cheering people when he said, "We have two oceans and nothing can get over them. We are protected by the seas." Well, as far as I know, every white and Negro person in America came to America by water. Water has always been the highway of the nations. It only becomes a barrier when battling men and ships are put upon it to prevent its being a thoroughfare, and to prevent an enemy stronger than ourselves from constraining our commerce in distant parts of the world. It is not necessary to come to America to stop American trade. A superior naval force in every waterway of the world, or even half a dozen waterways of the world, would stop American foreign trade, like a conjuring trick. With a combination of fleets in the Mediterranean, the Straits of Sumatra, Panama, it might be done. So we must beware!

One of my juniors went into the army fifteen months ago. He took the battalion he was attached to and talked to the men for a half-hour each evening on world affairs. I know he is a truthful man, and he told me that he was shocked and amazed to find that nearly 80% of his battalion, when shown a map of the world, were unable to point to the land shape called Africa. That is to say, they knew America, but, I suppose, not many of its details. They did not know where Africa was and could not distinguish it from other land masses near it, or from Australia. How are we going to make men have "morale" and understand what the war is about, if we shove them off to Libya when they have not the remotest idea where it is or how any threat could possibly come out of Libya against the United States?

They have maleducation in history. I hope you will not mind my saying this. I am saying it as an American deeply concerned about it. Perhaps I have had the advantage of having lived rather more than half my life on this hemisphere and the other half in Europe; the advantage at least of seeing two sides. I am talking now of something that naturally makes the attitude of most of our people apathetic, a feeling that the war has nothing to do with us and them, "Well, I hope we get along, O.K.". The fact, for example, that school histories do not contain a piece of information which is as important as is its absence intellectually misleading; that is, the origin of the Munroe Doctrine.

Now nearly everyone of our people brought up in the public schools, in fact any of the schools, has been told that President Monroe in 1823, threatened with the overpowering of South America by the great powers of continental Europe, declared that no sovereignty could change in this hemisphere without war from us. And that is supposed to be about all there was to it; it sounds like a gallant. chauvinistic, David-like defiance against the rest of the world. Not until after the fall of France did I see the details of the origin of the Monroe Doctrine in print where any average American, who did not want to go to libraries or was not majoring in history, could find it. It was an article by Walter Lippman and, of all places, in that emotionally unstable magazine *Life*.

The truth is that the allies of Russia in 1822, the whole of Central Europe, France and Spain and Portugal, I would say, called the Holy Alliance, got together to stop the liberation, the cutting-away of the colonies of South America. They were going to take South America, a great virgin continent; this would have reduced the position of this country and brought it to a very difficult one. George Canning, British Secretary for Foreign Affairs, said, "We must call in the New World to redress the balance of the old". He sent a messenger to Monroe to make the proposal for a *de facto*, not *de jure*, alliance between American and British sea power. British sea power was then utterly supreme, having been so since the recent destruction of the French and Spanish fleets in the Napoleonic Wars. Monroe presented this suggestion to only one member of his cabinet, Secretary of the Navy, Adams. He called in, very wisely, the two elder statesmen, Madison and Jefferson, and Jefferson's writings on the proposal are to be found in any good library. He summed it up by saying, "The only hope of survival of a young country like the United States is an alliance with the strongest friendly naval power which is a major American power as well". Many people wrinkle their eyebrows when I ask them "what is the second American western hemisphere power?" and most of them try to decide between Argentina, Canada or Brazil. Of course, it is Britain! It is that alliance that gave us one hundred years of peace, and only because of the rise of continental power in 1914 was the Monroe Doctrine challenged and America had to fight in 1917 to make good. She could not afford to lose control of the North Atlantic, any more than she can afford to lose it today.

Together, we can do this thing, but we cannot do it without knowing each other's office, duties and responsibilities. We must know our facts. We must not conceal expression of the details of such great things on behalf of fabricating nationalistic feeling. As a matter of fact, Nationalism was the canker of the nineteenth century, out of which came the great war, everybody feeling that he was better than the next fellow. It is only a diluted form of Hitler's "Herrenvolk", our feeling that we are better

than everybody else. We shall have to lose much of our national-sovereignty feelings if we would make a better world. In England it has been said by H. L. Fisher that the idea of educating the British army, in world history, geography and current affairs is one of the greatest military inventions since gunpowder.

This war is being fought with weapons of the mind as well as weapons of the body. So we speak of propaganda today. We know from the example of France the consequences of this warfare upon the mind of an army ill-equipped to meet it. It used to be said in 1937 that there were no more Frenchmen. Everybody there with $5,000 a year or upwards was a Fascist and everybody below it was a Communist. We were getting rapidly into that phase in our hatred over the last presidential election. My wife heard a lady boast that she and her brother last fall had been invited to a dinner party at Long Island and when they went into the house and found Marshall Field, a New Dealer, was one of the guests, they turned, said "Goodnight" to the host and left. And she said with pride, "And so did everybody else". When class feeling, money feeling, runs as high as that, the country is in danger. Plato said that long ago.

Now our army spends many months in camp. The officers particularly suffer often from boredom. They have been parted from their former professions and their family life, and many become a culture medium for apathy, rumour-mongering and general lowering of tone. The British have had to meet the same threat over a much longer period. They have met it by turning each platoon in camp into a school of citizenship as well as a school of war. Bulletins are issued to officers for compulsory study, bulletins on current events, on history, on the geography of the world and the geography of this war. This bulletin is used as a basis of a talk given by the officer. The officer then resigns temporarily his rank, and his position as a teacher and acts simply as Speaker of the House. The platoon goes into parliamentary session and then question and answer each other. In this way officers and men learn together, they have a chance to express their views and show and share their knowledge. The possibilities in such a training system are immense. They are intrinsically democratic and lift contemplation of political and social problems out of the sphere of second-hand thought and party feeling. The men are taught the beginning of thinking for themselves. There could be no better bulwark, no better buttress against mental invasion by fools or Nazi spokesmen than the truth which the men would learn of the world yesterday and of the world of today. There could be no surer path to a world, organized to live in peace, than one laid down as a solid foundation of knowledge in the minds of our soldiers, sailors and airmen, all of whom will return in victory and power to civil life. I hope that then none will be for the Party, and all be for the State.

But this cannot be achieved by mere proclamation, however added to education. The world needs *police*. Does anyone imagine that if we took away our police force there would be less crime in our cities, that nobody would again steal Cadillac cars? Does the missionary's virtue alone stop the cannibal from eating him? Should we scrap our law courts, would there be any chance of justice for the simple and the humble man? No, we must make no mistake about the peace, if we shall win it. The United Nations will once again bring law into this world. International law at German behest has been going downhill hard ever since 1866 and before. We will aim for it in human society and will with our strong hands make the good come forth. The will to this purpose is written in the Atlantic Charter, to which the United Nations have all subscribed, and for which all must be integrated in the truth. We shall not fail again, as we did in the last war. Nor shall our little men in Congress and Parliament, with hatred and envy in their hearts against each other, instead of compassion for the world, frustrate the wishes of our fighting men when they come home. The fighting man wants a better world to come out of his blood; this time he will not be denied.

Before I close I want permission to put to you two pieces of "propaganda". There was what I thought and what some of my colleagues thought, an unfortunate and unhappy statement from some of our profession, running the length of two columns in the *New York Times* some time ago, which in vague and pseudoscientific language drew pictures of what would happen to men of eighteen and nineteen if they saw the face of war, all this in a way to strike terror into the parents of any such young men. I felt very much for the parents of those people. Particularly since I knew from my experience of four years in France in every part of the field, that the thing was meretricious and untrue. Some of us made a short statement to reassure the public and reassure those parents, but before that was done I had been asked for my opinion, and this is what I wrote:

"It is well known that the last ounce of physical reserve needed for speedy emergency is only to be found in very young manhood. Sports like bullfighting cannot be played successfully after twenty-five if the players would attain finest physical performance. Only the other day Joe Louis is reported as having said that he was too old for boxing. Such physical excellence in healthy men is found at eighteen. It is on the wane by twenty-three or twenty-four and it is the last ounce that makes the difference between death and survival in physical combat. One could not help being impressed in the last war by the easy, humorous, carefree attitude of the very young soldier. They brooded never. Their elders brooded often. It was rare to find nervous breakdowns in men under 20. Nor did I ever see a conversion hysteria in such a young man.

"After the retreat of the British Fifth Army on March 21, 1918, something like 340,000 men, Britain's last reserves, were sent over the Channel in the course of five weeks. I was one of the officers to inspect them. They were seventeen years old, nearly all of them; some of them were eighteen—a gay, droll lot. Another man, I remember, had a head wound; his field card with his history on it, said, 'Private So-and-So, age 17, in France 3 years, wounded twice'. I looked at it steadily and long and said, 'What in the devil's name is this! This must be wrong.' 'No, it is not wrong. Quite right, Sir, quite right' was the reply. I said, 'You were in France when you were 14?' 'Yes, sir. Was in the retreat from Mons as a drummer boy, sir.' I said, "You have been wounded twice?' 'Yes.' 'You got a daisy there on the left side of your head.' 'Yes.' I said, 'Look here, I am going to have you boarded out of the army. You are only a child.' 'I am not a child, sir. Got a wife and baby, sir.' And he brought out of his bag a tintype of a nice young girl with a baby on her arm. Oh no, those young men don't brood; they breed.

"In England today, the doctors are finding that even the children who have been under heavy bombing recover much more speedily than do grown-up people. The younger one is, the more one lives in the immediate present and the less that immediate present persists in memory. The youngsters in the last war were terribly afraid that something might happen to end the war before they could see it. I am sure the same romantic enthusiasm exists today. I go further: if a man of eighteen does not feel it to be an extraordinary and lovely adventure to fight for his country, in the Coral Sea and across the Mountains of the Moon, he must have been either badly brought up or badly endowed. There's something wrong with him."

The second piece of propaganda of the faith that I want to read is a letter that came to a physician of my acquaintance from the parents of a young man of twenty. This physician had been successful, happily, in ridding a seventeen-year old daughter of theirs of a grave malady. And this is the letter that he received from the father:

"I want to send you a note of appreciation. I can hardly tell you there is no financial reward to compensate what you have done and are doing for my wife and me in your work for my daughter. Her advancement continues. She is beginning her studies with real interest, and her teacher after three days, having also taught Kay last fall, is greatly pleased over her progress. Since our last visit with you, we have received word that our eldest son, George, a lieutenant in the Marines, has been killed in action in the Solomon Islands. We have not yet received any notification from the government so that there is still a hope that the report may not be true. (It was true.) However, because of the origin of our information, we feel the chance is slight, although we are, of course, not in any way giving up hope. My wife is magnificent and a constant inspiration to me, and we have determined that if the boy has given his life to his country, he has done the most that can be done and it is our job to display the same courage he has shown and to rejoice in the feeling that after a life without fault as a son he has now proved himself without fault as a soldier. You can appreciate how deeply grateful we are to you that our Kay is so well at such a time. Regards."

The wife sent a letter along with that:

"Pop (as she called her husband) and I think so alike that after his letter to you, it is not necessary for me to add anything, but I cannot help telling you myself what a great part you are playing in the thankfulness of our hearts now. Through our heritage and preparation it is the greatest feeling in the world to know that we are able *now* to keep our thoughts turned away from selfishness and toward truth. Thank God for everything, and for His mercy to our daughter."

This is the Spirit of Good which we must believe will utterly overcome whatever be said or done by the Spirit of Evil.

CATECHISM IN MEDICAL HISTORY

By Heber C. Jamieson, M.B., F.R.C.P.(C)

Edmonton

QUESTIONS

1. What was Sydenham's criterion of adequate mercury dosage in syphilis?
2. What country may claim to have advanced the study of the heart and circulation more than any other? Name the men and their discoveries.
3. What chance would you have answering these questions at the University of Paris in the seventeenth century for a degree in Medicine?

ANSWERS

1. Mercury ointment was administered until salivation was well established—two quarts of saliva in twenty-four hours.
2. England.
   William Harvey—1628. Discovery of the circulation of the blood.
   Stephen Hales—First work on blood pressure.
   Sir John Floyer—Introduced accurate pulse taking.
   James Hope — First to correlate valvular lesions with change in heart sounds.
   Sir George Johnson — Wrote on arteriosclerosis.
   Sir James MacKenzie — Graphic studies of arterial and venous pulses.
   Sir Thomas Lewis — He elucidated cardiac irregularities.
   Arthur Keith and Flack—The Keith-Flack node, "the pacemaker of the heart".
   Gaskell — Inherent contractility of heart muscle.
   Withering—Introduced digitalis.
3. (1) From what part of the body did the water come which flowed from the side of the dead Christ, when he was pierced by the sharp point of a lance?
   (2) Are heroes born of heroes? Are they splenetic?
   (3) Is woman an imperfect work of Nature?
   (4) Is sneezing a natural act?
   (5) Is it salutary to get drunk once a month?
   (6) Does debauch bring baldness?

The Artist Looks at Endocrinology

WE reproduce herewith a mural recently completed in the Medical Building at McGill University. This is probably one of the first attempts at expression in art of the science of endocrinology. There is a good deal to be said for the view that art may present aspects of science to us, just as it has presented religion and other sides of human sociology.

The mural is symbolical of research in endocrinology, but as is often the case with symbolism its meaning cannot easily be put into words. The artist, Marion Scott, has declared her deep dislike of "circumscribing her work by words". However, something may be said, even if it is not everything.

The attempt, then, has been made to show at least two aspects of endocrinology, and as art alone can do, to combine these in one visual conception. The central figure, man, is reaching out towards the core of a spiral or nebula, suggesting mystery not yet unfolded, the fundamental mystery, perhaps, of life itself. Some part of this mystery however, has been unravelled by study. In the lines converging on, or radiating from his grasp is the suggestion of control and power derived by man from knowledge gained so far. There are symbols also to show not only the details of this knowledge, such as the complexity of the cell, but also how they have been arrived at through chemical conceptions and the microscope.

Then, at the periphery there are some of the clinical applications and problems of endocrinology; the exophthalmic patient is glaring at the acromegalic giant, with his attendant hypopituitary dwarf, and the bulging Cushing's and attenuated Simmond's disease. Above, the accoucheur's hand of tetany reminds us of the parathyroids. The adrenals are represented in their underactivity in Addison's disease and their overactivity in the adreno-genital syndrome. The ovarian follicle is shown with the corpus luteum and the association with lactation, pregnancy and ovarian malfunction.

Below stands the line of research files with the driving restlessness of the eternal "why" in every language.

H. E. MACDERMOT.

"Endocrinology"—*A mural by Marian Scott*

Plates and reproduction, courtesy DesBergers-Bismol Laboratories

Association Notes

1 Canadian Corps Troops Medical Society

The following request for affiliation with the Canadian Medical Association has been received.

As Secretary of the 1 Canadian Corps Troops Medical Society, I have been asked by the members of this society to apply for affiliation of 1 Canadian Corps Troops Medical Society with the Canadian Medical Association.

The Society was formed August 6, 1941, at a meeting of the Medical Officers, 1 Canadian Corps Troops.

The first slate of Officers elected was as follows: *Honorary President*—Brig. J. A. Linton; *President*—Lt.-Col. J. F. Haszard; *Vice-president*—Major C. V. Ward.

Membership is limited to Medical Officers of 1 Canadian Corps Troops and consists of 45 members. Meetings, however are open to all medical officers of the Canadian Forces and Divisional and Army Troops medical officers are regular visitors at the meetings. Since its formation the Society has met regularly once a month, barring operational or training commitments.

Speakers distinguished in their various fields have been secured from British, American and Canadian sources. The range of subjects covered has been very wide, ranging from nutrition to psychological medicine in the Army. Lately the Society has heard reports by medical officers returned from the Middle East and North Africa.

Thus an attempt is made to keep all medical officers informed of recent and important advances within the profession as well as the advances made in the application of medicine and surgery to Army conditions.

A business session occupies part of each meeting and at present the Society is deeply interested in the progress of Health Insurance in Canada and is preparing an expression of opinion on the 20 points set forth by the C.M.A.

The present slate of officers is as follows: *President*—Lt.-Col. P. A. T. Sneath; *Vice-president*—Major P. Maloney; *Secretary-Treasurer*—Capt. J. T. MacDougall.

J. T. MACDOUGALL, CAPT.,
Sec. Treas. 1 Canadian Corps Medical Society.

Medical War Relief Fund

The following additional subscriptions have been received:

Individual subscriptions from Saskatchewan..... $75.00

Medical Societies

No. 10 Canadian General Hospital R.C.A.M.C.

The regular monthly inter-hospital meeting of the Canadian Hospitals in England was held at No. 10 Canadian General Hospital on Thursday, May 27, 1943. About 75 guests were present, including representatives from all the Canadian Hospitals, the R.C.A.F., and the United States Army Medical Corps. Colonels L. C. Montgomery, J. M. MacFarlane, and F. H. van Nostrand represented R.C.A.M.C. Headquarters Staff.

The morning session was divided into a Medical Section presided over by Lt.-Col. J. H. Geddes and a Surgical Section under Lt.-Col. J. C. Wilson. The afternoon session was a combined one under the Chairmanship of Colonel H. P. Hamilton.

In the medical section, Capt. R. W. Graham presented two interesting cases of Tuberculous Lymphadenitis occurring in Canadian soldiers overseas who were recently seen at the hospital. The first patient, aged 23, noted a swelling of the lymph nodes of the cervical region following an attack of infectious hepatitis. Roentgenological examination of the chest revealed markedly enlarged nodes of the hilar region. Biopsy of one of the cervical lymph nodes showed it to be tuberculous. The second patient, aged 27, was admitted with a septic type of temperature, cough, sputum, and a palpable right submental lymph node. Roentgenological examination of the chest revealed enlarged lymph nodes of the hilar region similar to those seen in the first case. In neither case was there any involvement of the parenchyma of the lung. Diagnosis in the second case was facilitated by finding tubercle bacilli in the sputum. The course of the disease in the second case was rapidly progressive. He developed signs of meningeal irritation and died approximately six weeks after the onset of his first symptoms. A post mortem examination by Major J. H. Fisher revealed a generalized tuberculous involvement of the right submental, hilar, mediastinal and retroperitoneal lymph nodes. The case terminated as a miliary tuberculosis and death was due to a tuberculous meningitis. The positive sputum was accounted for by an erosion of one of the bronchi by direct extension from one of the hilar nodes. This case was of particular interest from the standpoint of lack of resistance and allergic sensitivity to the tubercle bacillus. Both cases were of speculative interest as to the portal of entry of the infecting organism.

Lt.-Col. Chas. Bennett expressed his interest in a discussion of tuberculosis in the Canadian Troops. He felt that as time went on we would see increasing numbers of cases of tuberculosis in the armed services in England, due in large measure to the fact that people from Canada

had a low resistance to tuberculosis as a result of the efficient control measures which were in force at home but which were largely lacking in England. Col. L. C. Montgomery quoted statistics to show that the incidence of pulmonary tuberculosis in the Canadian forces in England had increased from 0.32/1,000 in 1940 to 0.58/1,000 in 1941 and 0.90/1,000 in 1942. The reasons for this increase are probably those as stated above by Lt.-Col. Bennett. The incidence of extra pulmonary tuberculosis had remained quite constant throughout.

Capt. F. S. Brien presented an unusual case of vasomotor disturbances of the lower extremities in a Canadian soldier aged 43. The patient noted that following exposure to wet and cold during guard duty his feet became cold and painful and when he removed his shoes and socks his feet and especially his toes were of a waxy white appearance and it took a long time to warm them up and establish circulation. During this warming up process he would experience unpleasant tingling and prickling sensations in the affected areas. There was a trophic ulcer on the end of the right great toe just under the nail. While the patient was in bed and warm he had no complaints, his feet were essentially normal in appearance and pulsations were present in both dorsalis pedis arteries. After exposure to cold the feet and toes blanched out and pulsations disappeared from the dorsalis pedis arteries. Skin temperature and active passive hyperæmia studies pointed to a pure vasomotor disturbance as the etiologic factor and a diagnosis of Reynaud's disease of the feet was made. The patient was seen and studied by Sir Thomas Lewis who concurred with the diagnosis and emphasized the rarity of such conditions in males and that it was most unusual to have involvement of the feet without similar disturbances in the hands.

A case presented by Major H. A. Cave was that of meningitis occurring in a 19 year old soldier in which no organisms were found in either smears or cultures of the cerebrospinal fluid. The patient was given sulfapyridine and the symptoms cleared up completely in the course of 5 to 6 days, after which he developed an acute left orchitis. This lasted for 3 to 4 days and resulted in a completely atrophic testicle later. It was felt that this might have been a case of mumps meningo-encephalitis without parotid involvement. Such a postulation suggests that the sulfapyridine played little or no part in the recovery of the patient.

Capt. Angus D. McLachlin, reviewed 115 cases of fracture of the femur, which occurred in the Canadian Army Overseas prior to October 1, 1942. The majority occurred as a result of motorcycyle accidents and there was a high proportion of fractures close to or into the knee joint. Extensive soft tissue damage was common and many of the fractures were compound. The open fractures responded well to debridement, loose packing and immobilization. There were no deaths from gas gangrene or sepsis and no secondary hæmorrhage. Non-union and osteomyelitis were infrequent. The recovery period was prolonged in compound fractures involving the knee joint and in cases with marked soft tissue damage in the lower thigh. A stiff, painful, weak or unstable knee was the most common cause of reduction in category. While this type of injury might eventually yield a very useful leg, the time interval seemed too long to warrant treatment in England beyond the point when the patient could with safety be returned to Canada. (This analysis will be published in full at a later date.)

Capt. Geo. F. Pennal gave an illustrated talk on fractures of the hand and laid down certain general principles in the treatment of these injuries. Special emphasis was given to the poor results often met with in fractures of the fingers. Observation of the following rules was believed likely to improve this, namely: (1) immobilize all injured fingers; (2) immobilize only the injured finger; (3) immobilize injured fingers in flexion; (4) move actively all uninjured fingers; (5) prevent passive stretching.

Capt. Geo. H. Kitchen presented three cases of recent, complete acromio-clavicular dislocation which had been reduced by pinning with two Kirschner wires. In each case the acromio-clavicular joint was exposed and the wires were passed through the joint under direct vision. The reductions were satisfactorily maintained by this procedure and the patients were comfortable. Early active limited movements of the shoulder were encouraged and a minimal interference with shoulder movements by the wires was obtained, when they were cut just beneath the skin. Calcification was demonstrated by x-ray along the course of the coraco-clavicular ligament and the wires were removed during the sixth week. A full range of movement was obtained in the shoulder joint within two months of the original injury without pain or evidence of recurrence of the dislocation.

Capt. R. A. Y. Johnston presented several cases in which soft tissue injuries occurred following the application of "skin tight" or unpadded plaster casements in the treatment of fractures of the extremities. The causes of the damage were: (1) constriction of the extremity in fresh cases in which some swelling occurred; (2) pressure of the casement on bony prominences; (3) shifting of the casement in ambulant cases. The use of unpadded plaster casements is a satisfactory and universal custom in the treatment of fractures by the Medical Services of the Canadian Army Overseas and in expert hands very few complications have occurred.

Capt. R. C. Rider presented the following cases.

CASE 1

An officer who sustained a mustard gas burn of the hand from holding a defective bomb during a 15 minute demonstration. Heavy leather gloves were worn at the time and for a period of five or six hours afterwards, and no mustard gas liquid was noticed to have escaped. The demonstration occurred about 1030 hours and it was not until evening that any redness of the skin or irritation was noted. This occurred in the web space between the fingers and on the dorsum of the hand. By next morning vesicles were present in these areas and the patient was admitted to hospital. The vesicles were large and discrete but some of them had coalesced to form pemphigus-like blisters which reached their maximum size after 48 hours. The blisters were surrounded by a large area of erythema and tissue œdema. Treatment consisted of puncturing the blisters, and the application of mild wet dressings. Healing was slow but complete with very slight scarring. The penetrating ability of mustard gas liquid was emphasized and it was felt that the liquid having passed through the leather gloves was converted to vapour and attacked the thin moist skin of the fingers and back of the hand rather than the thicker more resistant skin of the palm during the 5 or 6 hours before the gloves were removed.

CASE 2

This was one of gangrene of the distal phalanx of the finger following incision and drainage of an infection of the pulp space. Anæsthesia was produced by injecting novocain and epinephrine distal to a tourniquet which was placed about the base of the finger to control bleeding. The day after operation the distal end of the phalanx became discoloured and a dry type of gangrene developed which extended to the crease at the distal inter-phalangeal joint. Conservative treatment was given, and amputation was not required.

A brief review of the literature revealed the rarity of such conditions following minor surgical procedures. The causative factors in producing the ischemia are the injection of too much anæsthetic solution, excess vasconstriction due to the epinephrine, vascular trauma due to the tourniquet and burns caused by soaking the fingers in too hot solution before sensation has completely returned.

For the afternoon session we were particularly fortunate in having an address by Sir Thomas Lewis on the subject of "Some factors concerned in injuring and protecting the skin exposed to low temperatures with particular reference to immersion foot and frostbite". He pointed out that the reaction of the skin following exposure to dry cold, to immersion in cold water and to certain grades of heat were basically the same. He felt that immersion foot as seen in the present war was not a new phenomenon particular to present day warfare but was essentially the same as the trench foot so frequently encountered in the Great War. He emphasized the importance of the cold factor in immersion foot and pointed out that prolonged immersion in warm water did not have the same disastrous effects on tissues as those seen following prolonged immersion in cold water. Long exposures to water of 20° C. or lower, as commonly encountered in the North Atlantic, formed the great bulk of cases of immersion foot seen in the present war. Such prolonged exposure leads not only to cooling of the part, but to vascular dilatation with consequent stagnation and œdema of the tissues. If care is not exercised, treatment may precipitate thrombosis of the vessels and consequent gangrene. He believed that maintaining the limbs at low temperatures as practised by Webster and his coworkers at Halifax was a most valuable contribution to the treatments of such cases. The presence of any type of constriction about the limbs causing vascular stagnation was an aggravating factor and such things as tight boots, garters, etc., should be avoided.

Commenting on frostbite, he stated that it had been a minor problem in the allied forces in this war. The ability of a dry skin with normal or increased fat content to withstand temperatures below its usual freezing point without becoming frozen (super cooling) suggested practical preventive measures which should be taken.

The second speaker of the afternoon session was Mr. Ross Munro, Canadian Press War Correspondent who spoke briefly of the Tunisian Campaign.

Col. L. C. Montgomery opened a discussion on "Medical economics in Canada" and stressed the importance to the overseas medical men of acquainting themselves with the work being done by the Canadian Medical Association in connection with expected forthcoming legislation on health insurance in Canada, as well as the activities of the Canadian Medical Procurement and Assignment Board. He emphasized the importance of all medical men familiarizing themselves with the twenty principles evolved by the Health Insurance Committee of the C.M.A. as the main principles upon which any type of health insurance should be based. It was decided to hold discussions regarding these principles at the various hospitals and suggestions or criticisms were to be sent to headquarters and forwarded from there to the Canadian Medical Association.

A Canadian General Hospital R.C.A.M.C. (C.A.O.)

CLINICAL DAY

The Commanding Officer, Col. C. P. Gaboury, R.C.A.M.C., and the staff of a General Hospital were hosts at the monthly hospital Clinical Day held on June 24, 1943. About 70 Medical Officers were present as guests, representing the various Overseas Hospitals, and Field Formations, C.M.H.Q. and N.D.H.Q. Among them were: Brig. C. P. Fenwick, M.C., V.D., Brig. C. A. Rae, E.D., Col. H. P. Hamilton, Col. J. A. MacFarlane, Col. L. C. Montgomery, Col. L. H. Leeson, Col. A. Ross, Col. G. A. Sinclair, Col. F. H. van Nostrand, Col. W. P. Warner.

Following the arrival of the visiting officers, there was a short interval for refreshments, and to afford the opportunity to exchange

greetings with old friends, which is one of the most valuable features of these meetings. The morning was then devoted to scientific sessions, the programs for which were as follows:—

MEDICINE

1030—A case of hæmoptysis. Major J. M. P. E. Robert.
1100—A case for diagnosis. Capt. J. B. A. Baillargeon.
1130—Pleurisy with effusion. Capt. L. G. Johnson.
1200—A case of dyspepsia. Lt.-Col. J. E. Morin.

SURGERY

1030—Treatment of ankle sprains by complete immobilization. Major C. E. Lamoureux.
1100—Acute pyogenic infection suggesting osteomyelitis (2 cases). Capt. M. J. P. Labreque.
1130—A case of chronic empyema. Capt. A. J. D. Jolicoeur.
1200—Unusual dislocations and fractures. Major C. E. Lamoureux and Capt. H. D. Smith.

After a luncheon which did much to dispel any illusions about the insufficiency of rations, the afternoon session took place. Major A. L. Chute, R.C.A.M.C., presented an interesting and illuminating talk on experience with the 8th Army in the Western Desert, and Major George Woods, R.C.A.M.C., gave a vivid account of his experiences while attached to the First Army in Tunisia.

A feature of the meeting was a Symposium on Post-War Medical Practice, while particular reference to the 20 principles enunciated by the Committee on Health Insurance of the Canadian Medical Association. From this discussion two broad impressions emerged:

Firstly, that the officers of the R.C.A.M.C., now serving in overseas military hospitals appreciate the efforts of the Canadian Medical Association to elucidate the complex problems now facing the profession, and to disseminate the opinions of the organized medical men; that a considerable degree of confidence is reposed in the Canadian Medical Association, but that it is felt that no specific or binding action should be taken without due regard for the opinions of the many physicians now serving their country at overseas stations.

Secondly, that these officers are keenly and thoroughly aware of their responsibilities to the public they serve. They realize that changes in social and economic conditions, as well as the increasing complexities of medical service itself, will require changes in or even reorganization of the old forms of practice. Their views on these matters are far from reactionary, and their chief desire is to provide the best possible service to all who require it. It is their hope and their belief that such changes need not involve the sacrifice of any important aspect of the medical profession's traditional ethic.

More specific suggestions as to detail and principle were made, but will be reported in another place.

Following the meeting, tea was served by the Nursing Sisters on the lawn of the Officers' Mess.

MAJOR H. S. TALBOT, R.C.A.M.C.,
Registrar. A Canadian General Hospital.

No. 8 Canadian General Hospital

HOSPITAL CLINICAL DAY

A very largely attended meeing was held at No. 8 Canadian General Hospital on April 29, 1943, which had the unique distinction of hearing from the newly appointed Director General of Medical Services, visiting in England, from National Defence Headquarters.

The morning clinical sessions provided concurrently sections in medicine and surgery. The papers were very well received and considerable discussion followed.

Following are short summaries of the papers presented.

MEDICAL SECTION

HÆMORRHAGIC ENCEPHALITIS IN A PATIENT UNDERGOING RAPID TREATMENT FOR PRIMARY V.D.S.—Capt. Brock M. Fahrni and Capt. J. F. A. McManus.

A review of the literature and case report of hæmorrhagic encephalitis was presented by Capt. B. M. Fahrni; the pathological specimens and section being demonstrated by Capt. J. F. A. McManus, who also discussed the pathogenesis of the lesions. The case presented, occurred during massive arseno-therapy and was fatal. The fact that hæmorrhagic encephalitis appears to be such a constant clinical and pathological picture regardless of the widely varying non-luetic conditions in which it also occurs, was stressed. The possibility or arsenobenzol poisoning, Herxheimer reaction, vascular hypersensitivity, and finally virus etiology was discussed.

ANALYSIS OF 10 MONTHS' EXPERIENCE IN AN OUT-PATIENT MEDICAL CLINIC.—Major James A. Dauphinee.

In the ten months period from May 25, 1942, when this Unit moved to its present location, until March 25, 1943, there were approximately 3,400 visits to the Out-Patients' Medical Clinic of this hospital.

Some of these visits resulted in immediate admission to hospital, and some were those of soldiers returning for a second or third time. Of the total number, however, 2,281 were new patients, and were partly or completely worked up in the Out-Patient Department. About 600 of these were admitted to hospital for further investigation and treatment, and the remainder were sent back to their units either to duty with instructions about their further management, or with the advice that their category be revised.

An analysis of the various conditions encountered in these out-patient consultations is given in the following table:

No appreciable disease	414
Skin diseases	407
Respiratory diseases	370
Functional nervous disorders	282
Dyspepsia of unknown origin	201
Rheumatic diseases	180
Organic gastro-intestinal diseases	79
Surgical and orthopædic conditions	69
Metabolic and endocrine conditions	42
Cardiovascular and renal diseases	38
Liver and gall bladder disease	35
Organic nervous disease	22
Conditions of spleen and lymph nodes	11
Miscellaneous conditions	50
Tuberculosis contacts	81

The striking feature of these figures is their high proportion of non-organic and functional conditions. Those soldiers who had dyspepsia of unknown origin, functional nervous disease, or who were considered to have no appreciable disease of any kind, make up 40% of the total number seen.

Diseases of the skin, disease of the respiratory tract, of which about 40% were cases of chronic or recurrent bronchitis, rheumatic conditions and organic gastro-intestinal conditions account for a very large proportion of the remainder. There were no cases of neoplastic disease, and the number of degenerative conditions was very small.

These results are probably what would be expected when dealing with a body of men of army age who are not yet actively engaged in the combat zone.

THREE CASES OF DUODENAL ULCER ASSOCIATED WITH JAUNDICE.—Capt. J. A. MacMillan.

Three patients admitted to hospital and diagnosed as infectious hepatitis were found by history and x-ray examination to have associated duodenal ulcer.

Today we believe that the lesions causing the jaundice in the primary hepatic type are of virus etiology.

Aggravation of a duodenal ulcer would seem much more readily explained by the lesion previously described as typical of catarrhal jaundice; that is, a catarrhal duodenitis and cholangitis, with jaundice arising secondarily to obliteration of the ampulla and bile ducts.

The older post mortem reports beginning with Virchow and later with Eppinger and Willcox show a catarrhal duodenitis with bile ducts blocked by plugs of mucus and the liver itself normal.

Pathological evidence for the lesions being primary hepatic are much more easy to find. Eppinger, Wallgreen and Hurst report on cases; and probably the strongest evidence results from microscopic examination of liver tissue removed by punch biopsy in early stages of the disease. Lt.-Col. Mitchell's findings in the Canadian army and the work at the British Post-Graduate School have revealed the presence of hepatitis in every patient.

Ask-Upmark in 1940 reports on the frequency of peptic ulcer after all types of liver damage.

It is interesting to speculate on the association, but as the two conditions duodenal ulcer and infectious hepatitis, are by no means uncommon it seems reasonable to use a simple coincidence as the explanation. It is interesting however, that these unrecognized cases of duodenal ulcer were brought to light due to aggravation by lesion causing the jaundice.

SURGICAL SECTION

A REVIEW OF FIFTEEN HUNDRED ORTHOPÆDIC CONSULTATIONS.—Major H. J. Spooner.

A review was made of 1,003 chronic orthopædic cases seen in the Out-Patient Department from May 25, 1942, to April 30, 1943. Two hundred and ninety-eight cases of backache were seen; 78 of these were recommended for recategorization to a lower group and 25 as unfit for service. Ninety-three arthritics were seen; 30 recommended for recategorization and 7 as unfit for service. Three hundred and fifty pairs of feet examined; 142 recommended for recategorization and 3 as unfit for service. The balance of the cases were made up of various orthopædic disabilities and deformities.

A plea was made for more rigid medical examinaion in Canada to prevent obviously unfit men for assault course training, being sent to this country as category "A". It was pointed out that many patients with so-called backache showed no physical or radiological signs of disease and that they should be encouraged to return to duty and not hospitalized or treated in hospitals but rather in their own M.I.R.s.

It was felt that medical boards in Canada should be aware of the meaning from the physical standpoint of assault and combined operations training.

THE SURGICAL TREATMENT OF PILONIDAL CYSTS.—Major L. M. Fairbairn.

Pilonidal sinus presents a problem in military practice; any method of shortening hospitalization and disability period should receive careful consideration.

In uncomplicated cases, primary closure can be safely adopted in quiescent cases, or those rendered quiescent by conservative treatment.

Seven consecutive cases are presented, which were treated in the past year by this method, returning to duty on an average of 5 weeks after operation with a comfortable scar and no recurrences reported to date.

Successful primary closure used depends on the following details: (1) complete excision of the cyst or sinus in a quiescent stage; (2) accurate hæmostasis with sparing use of the buried suture material; (3) suture and accurate closure with no undue tension, and a well applied dressing to obliterate dead space; (4) sulfonamides locally are an important contributary factor; (5) postoperative routine which obviates soiling of the wound.

ABDOMINAL HERNIA.—Major F. W. Schroeder.

A short review of all cases of abdominal hernia admitted to one surgical service during a ten months' period with a view to illustrating actual findings, operative procedures, and immediate results. Ninety-six cases were dealt with and in these 116 hernia were noted of which 103 were inguinal. The type of inguinal hernia noted was as follows: indirect inguinal 64, or 62.1%; direct inguinal 31, or 30.1%; recurrent inguinal 8, or 7.8%. In all cases repair was carried out with silk. In the inguinal series 5 cases were dealt with by removal of an indirect sac and repair of the internal ring only. A complete posterior repair using interrupted silk sutures was done in 20 instances. In the remaining 78 instances a floss silk lattice pattern repair was done. In the entire series 92 men had an uneventful recovery. One man had a large hæmatoma which was dealt with satisfactorily by aspiration. Three men developed a wound infection and of these one was definitely hæmatogenous in origin. In all three suture material had to be removed and satisfactory recovery followed.

No follow-up was available at the time.

It was felt that serious consideration should be given to the removal of the sac and repair of the internal inguinal ring in a considerably greater number of cases.

INTERNAL FIXATION FOR FRACTURED CLAVICLE.—Lieut.-Col. R. Beattie Martin.

Quite a number of soldiers following fracture of the clavicle complain of inability to wear their equipment without discomfort. This is due usually to an excessive amount of callus formation or to a sharp spicule of bone causing skin irritation. It is the practice in this hospital to do an open reduction on such cases as we are unable to satisfactorily reduce and immobilize. Up to the present one case in seven have required this method of treatment.

The incision is made along the lower border of the clavicle, the fracture reduced and fixed with a Kirschner wire introduced from the sternal side, the wide clipped at about one-half inch from its point of entry and the wound closed. The patient is allowed up in a day or two, the only restriction being a collar and cuff. The wire is removed when sufficient union is present, usually in the fifth or sixth week. This is easily done with a local anæsthetic and small incision.

The results have been quite satisfactory. There is perfect reduction with no excessive callus. The patient is comfortable during his convalescence and this is well as the rehabilitation period is considerably shortened.

NON-SPECIFIC EPIDIDYMITIS.—Major James M. Campbell.

Forty-three cases of this condition which were treated in this hospital during the last year, comprised the review. The disease is more common in military life, and it is relatively more common than it has been previously, because the use of sulfonamide has decreased markedly the incidence of gonococcal epididymitis. The disease takes three forms: (1) acute, (2) sub-acute, (3) chronic. Most of the cases resolve on conservative treatment, but there are a few chronic painful enlargements of the epididymis which do not resolve and these require epididymectomy: there were two such cases in this series.

Trauma rarely plays a real place in the causation of this disease. There was only one case in the series were it was thought to be definitely an exciting factor. Two cases were bilateral.

The important consideration in all chronic cases is to rule out tuberculous disease.

After lunch which was served to more than one hundred guests in the Officers' Mess, a considerable increase in numbers gathered for the afternoon session, presided over by the Officer Commanding, Col. H. Gordon Young, D.S.O., M.C.

Major C. E. G. Gould, regional neuropsychiatrist, presented his observations on 1,000 referred neuropsychiatric cases. This paper cannot adequately be summarized and will shortly be submitted for publication.

Col. W. Line, Director of Personnel Selection at N.D.H., gave a short résumé of the program of personnel selection being carried out at present in Canada.

Brigadier Brock Chisholm, C.B.E., M.C., was introduced by the chairman, Col. Young, as the chief speaker of the day. Brigadier Chisholm explained in a comprehensive and thought-provoking manner the changes which have recently taken place in medical services in Canada. He outlined possible further changes which might be expected and recommended that the members of the profession overseas give adequate consideration to any proposals.

Brigadier R. M. Luton, who was present at the meeting, also contributed to the discussion.

Toronto East Medical Society

The following communication was forwarded to the Executive of the Ontario Medical Association from the Toronto East Medical Association on June 27, 1943.

"Gentlemen:

"The Toronto East Medical Association begs to apply to the Ontario Medical Association for recognition as an Affiliated Society.

"Our Association was first organized in 1910. On account of the majority of its members enlisting, no meetings were held during the war. Meetings were resumed in 1919, and have continued since, without interruption. We have 111 paid up members, 68 of these are members in good standing of the O.M.A., 70 are Fellows of the Academy of Medicine, Toronto. Our Association holds regular monthly meetings, to which outstanding physicians and surgeons are invited to speak. We arrange a refresher course during the winter months for the weekly discussion of the newer and important advances in our science. In addition, we hold a clinical meeting once a month when our own members present and discuss cases and problems of medical interest.

"The Toronto East Medical Association maintains a Bulletin published monthly, now in its eighth year, a copy of which is sent under separate cover, and speaks for itself."

Camp Sussex Medical Society

The camp Sussex Medical Society held its regular meeting at the camp hospital on July 27. Two speakers presented papers as follows: "Functional dyspepsia", by Major K. J. R. Wightman and "Stader splint", by Major W. C. Whiteside. Major N. W. McLellan is the secretary of this Military Medical Society which is very active.

Moncton Medical Society

At the last regular meeting of the Moncton Medical Society Dr. A. D. Campbell, of Montreal, was the special speaker. Dr. Campbell, always a welcome visitor to the Maritimes, revived many old friendships.

A. STANLEY KIRKLAND.

Divisions of the Association

New Brunswick Division

The 63rd annual meeting of the Canadian Medical Association, New Brunswick Division, was held this year in Moncton. The Moncton Medical Society as hosts to their provincial colleagues made all arrangements for program and entertainment and their efforts resulted in an excellent meeting with an attendance of slightly over 100.

The various annual reports showed the Society to be in a healthy state of activity. Some complaint was reported about arbitrary taxing of doctors' accounts by the W.C.B. and the W.C.B. buffer committee under the chairman Dr. W. J. Baxter were instructed to discuss the matter

with the Compensation Board and also to arrange, if possible, to have the fee for first attendances raised to two dollars.

Following discussions at this and many previous meetings it was decided to increase the annual fee of the society to include membership in the Canadian Medical Association and a request was forwarded to the Council of Physicians and Surgeons to collect such a fee beginning January 1, 1944. This fee will be eighteen or twenty dollars per year. By this action each member of the New Brunswick Medical Society will be a member in good standing of the C.M.A. and receive all its privileges including the *Canadian Medical Association Journal*. It is felt that such action throughout Canada will place medical men in a better position when dealing with Provincial or Federal authority.

An effort is to be made to arrange a permanent date for the annual meeting of the Society to avoid constant changes made in late years to accommodate the various Maritime meetings to jibe with the eastern tour of the senior officers of the C.M.A.

The society went on record as disapproving any group hospitalization plan which includes the provisions of medical services.

The St. Croix Medical Society invited the N.B. Society to hold its 64th annual meeting next year in St. Stephen. The invitation was accepted.

The election of officers resulted as follows:

The slate of officers and committees for 1943-1944 is as follows: *President*—Dr. H. S. Everett; *First Vice-president*—Dr. P. C. Laporte; *Second Vice-president*—Dr. P. McL. Atkinson; *Treasurer*—Dr. A. L. Donovan; *Secretary*—Dr. A. S. Kirkland. *Executive Committee*—Drs. E. O. Thomas, St. Croix; W. S. Fitzpatrick, Moncton; J. S. Hynes, Fredericton; G. B. Gaudreau, Madawaska; Geo. Skinner, Saint John; F. B. Wishart, Woodstock; D. A. Thompson, Bathurst; Geo. Dumont, Campbellton. *W.C.B. Buffer Committee*—Drs. W. J. Baxter, Chairman, J. R. Nugent, G. M. White. *Cancer Committee*—Drs. J. S. Hynes, Chairman, A. S. Kirkland, H. S. Everett, R. D. Roach, J. M. Barry, J. H. M. Rice. *Golf Committee*—Drs. A. F. VanWart, Chairman, W. S. Fitzpatrick, V. D. Davidson. *Additional Members C.M.A. Executive*—Drs. C. J. Veniot, H. E. Britton, G. M. White, J. R. Nugent, P. C. Laporte. *Alternates*—Drs. R. J. Collins, Geo. Skinner, R. W. L. Earle, J. S. Hynes. *C.M.A. Nominating Committee*—Dr. Geo. M. White. *Alternate*—Dr. H. S. Everett. *C.M.A. Executive Committee*—Dr. A. F. VanWart. *Alternate*—Dr. C. J. Veniot. *C.M.A. Advisory Committee*—Dr. A. S. Kirkland, Chairman, plus entire Executive Committee. *W.C.B. Tbc. Committee*—Drs. H. A. Farris, Chairman, Geo. Skinner, Arnold Branch. *C.M.A. Editorial Board*—Dr. A. S. Kirkland.

A. STANLEY KIRKLAND.

Nova Scotia Division

The Canadian Medical Association, Nova Scotia Division, held its 19th annual meeting at Kentville's Cornwallis Inn, July 7 and 8. Stripped of all social tinsel this third wartime session was devoted strictly to science and business. Reflecting well on the serious intent of the Nova Scotian practitioner, attendance rose to a new high. Freed from competition with teas, golf and dancing, the scientific program was the strongest in many years, while business sessions were no less productive than usual.

The problems of the Dominion, both at home and overseas, were, of course, paramount in the business meetings. Dr. Sclater Lewis and Dr. T. C. Routley presented the health insurance picture. When compared with the sketchy, uncertain outlines of only three years ago, it has acquired a convincing maturity.

President Alan Curry also devoted his address to Health Insurance, reviewed briefly the history of its development; approved of government controlled preventive medicine for the whole population and of curative medicine for those with incomes below $2,000; warned of the danger of destroying incentive by too drastic regimentation of the profession.

The Health Insurance plan was referred to the provincial branch societies for consideration before giving it the approval of the parent organization.

The problem of government control of the profession for adequate wartime service promoted brisk discussion, and little that was concrete.

Prominent in the scientific field were the visiting speakers: Dr. Roscoe Graham, on "Gallbladder disease" and "Carcinoma of the cæcum and left colon"; Dr. Kenneth G. MacKenzie on "Extruded intervertebral disc" and "Cranial cerebral injury"; Dr. C. H. Best on "Naval medical research" (luncheon address); Dr. D. Schlater Lewis on "Drugs as they affect the circulatory system"; and Surgeon-Lieutenant Commander J. W. Graham, R.C.N.H., on "The use of sulfonamide drugs in general medicine".

Dr. J. S. Robertson, D.M.H.O., spoke on "Quarantine regulations for communicable diseases—terminal disinfection"; Dr. G. B. Wiswell on "Neonatal hæmorrhage and rôle of vitamin K"; Wing commander C. B. Stewart, R.C.A.F., on "Decompression sickness"; Dr. H. B. Atlee on "Some life saving procedures in obstetrics"; Lt.-Colonel T. A. Lebbetter, R.C.A.M.C., on "The heart in middle age".

Reports of Secretary Grant and Treasurer Muir showed the society to have one of the most representative memberships in its history, and to be financially sound.

Dr. Curry conducted the meetings with easy dispatch. Their concluding session brought the calm presence and bright smile of incoming President John C. Wickwire to the chair. Other officers are: *First Vice-president* — Dr. P. S. Cochrane, Wolfville; *Second Vice-president*—Dr. A. E. Blackett, New Glasgow; *Treasurer*—Dr. W. I. Muir, Halifax (re-elected); *Secretary*—Dr. H. G. Grant, Halifax (re-elected).

ARTHUR R. MURPHY

Canadian Medical War Services

MEDICAL OFFICERS APPOINTED TO THE ROYAL CANADIAN NAVAL SERVICE APRIL AND MAY, 1943

(Previous lists appeared in February and May, 1943, issues)

SECTION III

Name	*Address*	*Date of Appointment*
MacNeil, J. J.,	Digby, N.S.	18-5-43
MacNeil, R. W.,	Winnipeg	21-4-43
Murray, R. G.,	Vancouver	19-5-43
Robichon, J.,	Three Rivers, Que.	20-4-43

MEDICAL OFFICERS APPOINTED TO THE R.C.A.M.C. — ACTIVE FORCE JUNE, 1943

(Previous sections appeared in the February, March, May, and July, 1943, issues)

SECTION XIII

Name	*Address*	*Date of Appointment*
Ball, N. J.,	Oliver, B.C.	3-7-43
Bugg, W. J. F.,	London, Ont.	4-6-43
Cain, M. C.,	Toronto	15-6-43
Cluff, J. W.,	Vancouver	12-7-43
Deeth, J. H.,	Islington, Ont.	20-5-43
Gendreau, L. P.,	Selkirk, Man.	23-2-43
Germain, R.,	St. Hyacinthe, Que.	2-6-43
Glasgow, R. R. M.,	Micheal, B.C.	18-6-43
Goldstein, P.,	Prince Albert, Sask.	1-6-43
Inglis, H. F.,	Vancouver	31-5-43
Kinnaird, F. A.,	Russell, Ont.	1-6-43
Knox, H. C.,	Montreal	17-9-41
Lander, A. H.,	Winnipeg	21-5-43
Letienne, R.,	St. Boniface, Man.	2-6-43
Lynch, D. O'G.,	Woodstock, Ont.	
MacFarlane, G. N.,	Toronto	20-5-43
MacLaren, D. B.,	Toronto	4-5-43
McDonald, R. J.,	Vancouver	18-6-43
McGregor, K. M.,	Kingston, Ont.	19-5-43
McKee, G. H.,	Vancouver	31-5-43
Meredith, J. T.,	Orillia, Ont.	6-5-43
Mink, M. M.,	Toronto	10-5-43
Olacke, F. A.,	Ashcroft, B.C.	31-5-43
Pickering, J. W.,	Vancouver	12-7-43
Ross, W. D.,	Montreal	7-7-43
Rubin, I. C.,	Montreal	7-6-43
Sherman, E. D.,	Sydney, N.S.	1-6-43
Spiro, H. M.,	New Glasgow, N.S.	9-6-43
Sutherland, W. H.,	Vancouver	20-10-42
Weil, P. G.,	Montreal	1-3-43
Wetmore, C. P.,	Saint John, N.B.	5-7-43
Wilson, A.,	Vancouver	12-7-43

JULY, 1943

SECTION XIV

Name	*Address*	*Date of Appointment*
Adams, M. B.,	Hamilton, Ont.	2-7-43
Bell, R. G.,	Kingston, Ont.	
Bissett, E. D. R.,	Pine Falls, Man.	6-7-43
Chisholm, J.,	Oakville, Ont.	13-7-43
Grauer, F. W.,	Vancouver	25-6-43
Hartroft, W. S.,	London, Ont.	1-7-43
Lehmann, P.,	Montreal	8-7-43
Locke, C. J.,	Winchester, Ont.	
Martin, P. D. R. L.,	Laval des Rapids, Que.	19-7-43
Michalski, A.,	Hamilton, Ont.	21-6-43
Smith, I. T.,	Hawkesbury, Ont.	12-7-43
Sutherland, R. B.,	Parry Sound, Ont.	16-6-43
Wakefield, G. E.,	Winnipeg	8-7-43
Werver, H. G.,	Vancouver	1-7-43

MEDICAL OFFICERS STRUCK OFF STRENGTH OF THE R.C.A.M.C.—ACTIVE FORCE JUNE, 1943

SECTION XV

Name	*Address*	*Date struck off strength*
Brachman, B.,	Regina	15-5-43
Lightman, S. S.,	Toronto	26-5-43
McCart, H. W. D.,	Toronto	3-6-43
Montgomery, R. C.,	Toronto	3-5-43
Murtagh, A. P.,	Timmins, Ont.	
Segal, J. R.,	Winnipeg	28-5-43
Wright, J. G.,	Regina	31-5-43

JULY, 1943

SECTION XVI

Name	Address	Date struck off strength
Allen, J. L.,	Calgary	31-7-43
Archibald, E. W.,	Montreal	31-7-43
Baker, M. D.,	New Toronto	31-7-43
Baldwin, S. G.,	Vernon, B.C.	15-7-43
Blakeman, F. W.,	Ottawa	31-7-43
Brace, W. D.,	Marsden, Sask.	31-7-43
Bruce, D. S.,	Regina	10-6-43
Coleman, C. E.,	Calgary	31-7-43
Dewitt, C. E. A.,	Wolfville, N.S.	31-7-43
Eason, M.,	Toronto	30-6-43
Graham, M. D.,	Ottawa	15-7-43
Haight, W. R. W.,	Lancaster, Ont.	31-7-43
Houston, S. W.,	Kingston, Ont.	13-7-43
Hunter, J. D.,	Victoria	31-7-43
Johnstone, D. S.,	Regina	31-7-43
Kappelle, D. P.,	Hamilton, Ont.	31-7-43
Lough, H. O.		21-3-43
McLeod, J. G.,	Toronto	31-7-43
McRae, C. A.		
Rankin, A. C.,	Ottawa	31-7-43
Reeds, W. R.,	Agincourt, Ont.	31-7-43
Sherk, B. E.,	Fenwick, Ont.	31-6-43
Stirling, J. T.,	Winnipeg	31-7-43
Sutherland, R. H.,	Pictou, N.S.	31-7-43
Tough, F. W. K.,	Toronto	31-7-43
Whitmore, A. E.,	Vancouver	31-7-43
Wood, J. H.,	Toronto	31-7-43
Wright, R. P.,	Montreal	31-7-43

Special Correspondence

The London Letter

(From our own correspondent)

WAR-TIME CHANGES

Many curious and unexpected things have happened during this war as regards diseases, and one of the most remarkable has been the decline in the acute rheumatism of childhood. It is true that it was already on the downward grade in 1939 but since that time the crude death rate from rheumatic fever for all ages, has dropped in a spectacular fashion and in the last published figures was a little over half of the 1939 rate. Dr. J. A. Glover, discussing these results, attributes them mainly to the decrease in poverty caused by abundant employment during war-time, with the greatly increased provision of milk for all children and of solid meals for school children. Evacuation has also brought along changes of air for many and it was well-known in the past how special convalescence in the country particularly helped this type. Another decline is not quite so satisfactory, and this concerns the birth-rate. Both Houses of Parliament have discussed it recently and it is pointed out that at the present rate of progress, in twenty years' time we should be in a panic about the population because there would be so many old people and relatively few children, not a very satisfactory basis for any social security plan. Yet the Minister of Health is able to boast that last year in England and Wales, there was the lowest maternal mortality rate on record, the lowest still-birth-rate, the lowest infantile mortality rate and the lowest death-rate from diphtheria. The Government have announced an enquiry on the broadest basis into the whole question of the birth-rate and there is also in the new rates of pay and conditions for midwives, a clear indication that both the quantitative and the qualitative aspects of the new-born baby are well under consideration.

MILK AGAIN

The campaign for the compulsory pasteurization of milk has received a great impetus from the latest Government's proposals. Alarmed by the fact that the public had no longer the right to choose its milk, the Ministries concerned have had to see to it that a safe product was generally available. A White Paper issued last month proposes only three sorts of milk shall be legally sold. The first is "T.T." from tuberculin-tested cows—and the whole standard of supervision is to be improved — next, "Accredited Milk" not treated by heat, and finally, "heat-treated milk". Medical opinion is still uneasy about the middle category for figures have been produced to show that it often contains tubercle bacilli and in fact, under a somewhat pompous title, represents a potentially dangerous liquid. But it is a great step forward that the ordinary milk used by the vast majority of the population will in time, as plant becomes available, conform to the safe, pasteurized variety. It is moreover, significant that it was the Minister of Agriculture who brought forward the Government's proposals.

ROYAL COLLEGE OF SURGEONS

A hundred years ago, the high surgical diploma of the F.R.C.S. was instituted, and the other night a colourful gathering was held in London to celebrate the occasion. Many visitors from Canada were present for Professor W. G. Penfield and Professor N. S. Shenstone had been elected honorary fellows and Col. J. A. MacFarlane was there in person to receive a similar honour. These honorary fellows were in good company for on this occasion, Mr. Winston Churchill headed the list. The College itself came into existence at the beginning of the 19th century, but it was not until 1843 that a Royal Charter was obtained, largely owing to the influence of Sir Benjamin Collins Brodie who set up the standards for the F.R.C.S. It is interesting that the by-laws of this high qualification have been little altered during the hundred years, and it was Brodie's general scientific interests which made sure that those wishing to secure the F.R.C.S. had a sound training in the basic sciences. The Royal College is seeking to build up again its famous museum so much of which was destroyed by enemy action and it

might be a fitting way of celebrating this centenary if those with suitable specimens would get in touch with the College Authorities, Lincoln's Inn Fields, London, W.C.1. Celebrations were held in the great hall of Lincoln's Inn and your correspondent can regard with shame that he failed to answer a Canadian colleague whom he met there, as to the identity of Lincoln!

ALAN MONCRIEFF.

London, August, 1943.

University Notes

University of Toronto

Medals, scholarships and prizes awarded by the Senate of the University: The Cody Gold Medal—A. S. Tauber; The Cody Silver Medal—H. A. W. Smith, B.A.; The Cody Silver Medal—E. F. Routley; The William John Hendry Memorial Scholarship in Obstetrics and Gynæcology—(*Aeq.*) D. M. Boyd and Miss M. J. Forgie; The Chappell Prize in Clinical Medicine—E. F. Routley; The Ontario Medical Association Prize in Hygiene and Preventive Medicine—E. F. Routley; The David Dunlap Memorial Scholarships — Sixth Year, J. E. Harvey, B.A.; Fifth Year, W. B. Spaulding; The R. S. Saddington Medal in Pathology—J. V. Basmajian.

Miscellany

MEDICINE AND POLITICS

By Geoffrey Bourne, M.D., F.R.C.P.

[*The following article by Dr. Geoffrey Bourne appeared in "The British Medical Journal", May 29, 1943. His subject is one that must interest all medical men, whether the points dealt with are of immediate concern or not. His masterly style sets his paper on a very high level.*—EDITOR.]

In considering the future of Medicine in this country two separate and distinct issues are involved. One is the question of how adequate health services are to be financed; the other is the question of how they are to be organized and controlled. The former will obviously depend upon the economic state of the country after the war. A considerable extension of state financing will be necessary if and when direct payment out of earnings and voluntary efforts can no longer meet the existing needs or the increasing burden of essential future development. State financing of medical services may then be a duty and a benefit. But *political control* of medical practice and of medical science is another matter, and in my opinion this will always be unconditionally bad.

THE POLITICAL AND THE SCIENTIFIC OUTLOOK

The politician differs from the doctor in training, qualification, and general outlook. The member of Parliament is trained for some activity other than the science of government, or else he is untrained. He is not qualified for his work by any necessary study of finance, economics, or even the technique of reasoning. The emotions of the populace are his guiding light, and it is dangerous for him to defy them. Playing upon the emotions is also the means by which he achieves his political ends. When political axioms are unpleasant or unpopular they may be disregarded or changed. The politician is often ignorant of science, and even if he is aware of the established scientific facts in such cases as diphtheria immunization or pasteurization of milk he is prepared to ignore them in order to avoid antagonizing vocal and ignorant constituents. "This might be the pate of a politician", says Hamlet, "one that could circumvent God".

The doctor, on the other hand, undergoes long, arduous, and intensive training, and his knowledge is thoroughly tested before qualification and practice. He has been taught to weigh evidence before forming conclusions, and knows that failure to act in accordance with scientific truth invites disaster. He learns to respect truth as such, and to value severe and unbiased criticism as a means of arriving at truth. Thus, a fundamental difference exists between political and scientific standards. Political policy is determined chiefly by opportunism and expediency; honest-mindedness and accuracy are essential in science. When scientifically trained individuals engage in politics they are usually forced by circumstances to judge issues by political rather than scientific standards. The science of medicine must never allow itself to be put in a position where its freedom is in the slightest degree curtailed by such political pretexts as the statement that a question of "policy" is involved. Complete freedom of speech, criticism, and medical practice must be retained. Any member of a state service must have the right to speak his mind about his political or professional superiors on any question of medical science, practice, or policy.

SCIENCE AND ADMINISTRATION

The politician, in so far as he is altruistic, has one supreme aim—administration. To be a good administrator is his ideal. "The Administration", "the Executive", are self-explanatory terms. There is a connotation of supreme central power exercised through successive subservient grades. The politician, by adding "ad", has reversed the word's proper conception. He is fond of this minatory prefix; he adverts, he adheres, he adjures, and he admonishes. Ministration means service. Now, since what is unknown cannot be administered or ministered, the policitian regards research as

politically non-existent. Moreover, the political or electoral value of future discoveries is *nil*. The public attitude to scientific matters confirms the politician in his idea; for *vox populi vox Dei*. Medical service, to the man in the street, is something which can be "laid on, like gas and water". Politics can often be turned on like gas, but science cannot be turned on like water. Where uninstructed public opinion can directly influence medical organization, as in municipal councils, this blind worship of administration is shown by the fact that seniority in the medical services combines increasing administrative power, diminishing medical opportunities, and more pay.

The public, taught to worship and revere administrators, is prepared to receive their administrations without complaint at any given level of scientific ignorance. In 1920 hypothetical medical bureaucracies might well have stifled the research work which discovered insulin and the liver treatment of pernicious anæmia. In that case the public would have continued to die happily and respectably of these diseases with praises on their lips for the smooth efficiency of their bureaucrats. Medical discoveries are popularly regarded as dropping like ripe plums from trees. Politicians are prepared to exploit them when they do drop, but neither the politicians nor the public realize that a research worker requires adequate laboratories, freedom from interference, a completely fair intellectual field, and adequate remuneration. A scientific doctor has the same needs, and all good doctors try to be scientific. These requirements are not smiled upon by the administrator, for they fall into no preconceived pattern and smack of revolt and insubordination.

History proves that scientific freedom and research are of vastly greater importance to humanity than is administration. This is especially to be stressed because medical science is very young and has far to go. A bureaucratic medical administration may be highly efficient, but if it stifles initiative it will perpetuate the existing death rate of many diseases. Professional freedom, on the other hand, given the right atmosphere and opportunity, will reduce these death rates even if the administration is less good. Therefore, in terms of human lives, there is no doubt that the scientist is more valuable than the administrator. Innovators of all kinds are attacked by politicians of most parties; scientific innovators are equally attacked in medicine. But, in politics, the fate of the innovator may entirely depend upon money, newspaper influence, misrepresentation of facts, party combinations, or propaganda. In science the innovator is sooner or later accorded his rightful place when the truth or falsity of his claims is established by experiment, logic, and observed fact. The careers of President Wilson and of Lister provide significant examples of the two methods.

Concentration upon administration and lack of appreciation of real scientific needs are exemplified by the municipally controlled services, in which pathological and other special staffing is inadequate, except for bare routine. The voluntary hospitals, starved of money as they are, compare in these essential respects most favourably with their municipal sisters, who have, or should have, unrestricted financial support.

Intellectual activities are not encouraged by politicians. Education is the most important of all such activities, and the bureaucratic treatment of education by politicians, both in Parliament and in local councils, is of sinister omen. The initiative of teachers is damped centrally; they are poorly paid, and mercilessly overdriven as indicated by the size of classes in the pre-war period. The financial worth of the teacher to the community in many cases is assessed at a lower level than that of the bus-conductor.

Ideally, administration should decapitate itself and minister fully to science, thus allowing scientists and doctors full scope to serve the public. The great advances in American medicine in the last 25 years are probably largely due to the humble place generously and voluntarily taken by the administrators of such funds as the Rockefeller Trust. A similar attitude could be assumed by State ministrators in a British Medical Service. Wise generosity is a good investment.

The political risks inherent in State control of medicine are real enough when this is centrally directed. They become greater when the control is relegated to small local bodies. The local magnates, farmers, trade unions, and other interests will all bring pressure on the isolated medical bureaucrat. This latter, for the sake of the peace and quiet so desirable for steady Civil Service promotion, will almost inevitably try to keep his local doctors and scientists quiet and orthodox, and will tend to discourage those experiments and investigations necessary for advance in medical knowledge. In a State service the local liaison between the public and the profession should be designed to be non-political.

The muddle-headed thinker and the political fanatic will deduce or pretend that any criticism of politicians and administrators in this connection is an attack upon the whole idea of State medicine. This is untrue and is founded upon false logic. The two issues, State financing of health services and autocratic political control over science, must be considered separately. A system which combines these is completely unacceptable. One in which science is free and finance is inadequate is better, for progress follows intellectual freedom. A system which combined financial support with complete intellectual and professional freedom would be ideal. If State financing of medical services is an economic necessity the wisest course would be to place it under a detached and sane body such as the

Privy Council. In this way medicine might be saved from becoming the new electoral toy or the helpless prey of central and local party politics, and there would be some hope of preserving that individual initiative which both Mr. Herbert Morrison and Mr. Oliver Lyttleton have recently praised as being so valuable "in its proper place". No more proper place for this quality exists than medicine.

The medical profession can help to clarify the issue by determining solidly that, at all costs,

1. Medicine and science must not be political.
2. In any State service the administrator shall become the ministrator, the servant of the public and its doctors.
3. The profession must be controlled by itself —that is, democratically from within in respect of its medical affairs.
4. In any State service promotion must be by professional ability and not by seniority.
5. The public must not be fobbed off with a medical service which will be just adequate. The country must be prepared to pay for the best possible service.
6. Research and medical teaching must be intellectually free and generously financed.
7. Opportunities for reviewing and remodelling the system from within must be available.

The conclusion of this matter is of vital interest to all branches of science and therefore to civilization; for science is the sap of civilization. Medicine is the most powerful, politically, of any scientific activity. If it follows education into the political maw there will be little to prevent all other intellectual activities and freedoms from following. It is imperative, therefore, that freedom of scientific action, speech, and criticism be insisted upon quickly by all scientists, both for medicine and for themselves. The mind is greater than the body. Habeas Corpus was one milestone in human freedom; Habeas Mentem must be made the second.

Doctors in Congress

The *Journal of the American Medical Association* (June 26, 1943) comments editorially as follows on the difficulty of getting the scientific medical point of view before legislators: after listing the seven physicians now in Congress the editorial continues:—

"By the very nature of things, a physician in the Congress should be able to present to the membership of that august body the scientific point of view that is lacking from the education of most of the members, the majority of whom are lawyers. Indeed, with seven physicians holding membership one might anticipate that there would not be any difficulty in getting the medical evidence clearly before the legislators. Nevertheless it would not seem, if we are to believe Dr. Walter H. Judd of Minneapolis, that any such possibility prevails. In a recent communication to *Minnesota Medicine* (June 1943) Congressman Judd says:

> There are now seven of us doctors in Congress, by the way.
>
> All of us got together, a while back, in the hope of fostering some sort of over-all scheme to take care of the medical situation. We hoped, at least, to be on the inside so as to survey the situation in the hospitals, in the Army and the Navy and Public Health Service and make an over-all plan. But we didn't get anywhere.
>
> The Public Health Service was interested but the Army said nothing doing and the Navy was even more reluctant. Each group wants the men and the power and neither will give way to the others. It is the same with many government agencies in Washington.
>
> In fact, I am convinced that what we need most in Washington is more doctors in government and, above all, more of the kind of mental habits that good doctors must have.

"In his statement to the Minnesota State Medical Association Congressman Judd also urged that the medical profession accept responsibility for leadership in medicine in the postwar period. 'Certainly,' he said, 'neither you nor I want the professional philanthropists spinning out the alterations and calling the turn, though that is just exactly what will happen unless we take it over.' He felt that medicine might well take the middle course between the 'Old Guard,' which says that things must stay as they are, and 'the radical section that wants to scrap the entire system and start over.' Congressman Judd also felt apparently that it was difficult for Congress or the Senate to obtain information concerning medicine. An investigation of the records in the headquarters office of the American Medical Association indicates that heads of practically every government agency call at frequent intervals on the American Medical Association in their desire for accurate information regarding medical proposals. The Bureau of Legal Medicine and Legislation and the state medical societies regularly send to their representative in the Congress information regarding pending medical and health legislation. Unfortunately, some members of Congress studiously avoid any attempt to obtain consultation or information. . . . .

"The contacts of American medicine in municipal, state and federal government are surrounded in these times with hazardous possibilities. Motivations are constantly questioned. Indeed, in his presidential address to the Minnesota State Medical Association Dr. Stephen H. Baxter pointed out that the activities of the Minnesota State Medical Association in relation to state legislation had recently been questioned by the state senate and 'that a resolution was presented to the Senate Committee calling for an investigation of the activities of the representatives of our Association at the Capitol. This resolution was not adopted, but it was widely publicized, and the very fact of its introduction created, in the minds of many people, impressions unfavourable to the Association.'"

Abstracts from Current Literature

Surgery

The Surgical Problem of Gastric Cancer. Wangensteen, O. H.: *Arch. Surg.*, 1943, **46:** 879.

Carcinoma of the stomach constitutes a surgical problem of great importance. The formidable operative mortality of earlier years largely is disappearing. The experience of the author suggests that subtotal resections for cancer of the stomach can be done with a hospital mortality approaching closely that of gastric resection for benign duodenal and gastric ulcers. Improvement in the end results of the surgical management of cancer of the stomach is contingent on a larger proportion of patients coming to operation early enough to insure complete eradication of the disease. Palliative resections for gastric cancer do not prolong life as much as similar operations undertaken for colonic cancer. Nevertheless, as long as palliative operations can be done with reasonable risk, it is preferable to excise the ulcerative lesion, even though the betterment is only temporary. The surgeon should excise the entire lesser curvature routinely in all operations for gastric carcinoma, to avoid leaving residual microscopic cancer at the proximal line of resection.

At Wangensteen's clinic closed anastomosis is employed regularly in all resections in the gastrointestinal tract. This is an item of some importance in extending resection to patients who are substandard risks without increasing the hazards of operation. The loss of blood during operation should be minimal. Complete elimination of postoperative obstruction at the efferent gastric outlet after resecion, has been an important item in reducing operative hazards, morbidity and mortality. Hepatic resection is a justifiable procedure for the excision of direct carcinomatous extensions from the stomach into the liver. The author stresses the importance of adequate preoperative preparation of poor risk surgical patients to withstand formidable operations.

Lasting cures of gastric cancer can be achieved only when complete operations are done. G. E. LEARMONTH

Sliding or Paraperitoneal Hernia of the Pelvic Colon. Brown, R. K.: *Surg., Gyn. & Obst.*, 1943, **76:** 91.

This is a plea for surgeons to effect a second entrance to the peritoneal cavity in order to deal with this type of hernia which is notorious for its difficulty of repair and frequency of recurrence. The author demonstrates that the sac of the sliding hernia is in fact the mesentery of the pelvic colon turned inside out. If a higher opening is made into the abdominal cavity the bowel can be pulled up into a normal position and its mesentery can be reconstituted. The inguinal canal is now clear and can be soundly repaired. Through the higher opening the inner surface of the repair can be examined.

J. R. LACROIX

Tuberculosis of the Ankle Joint. Houkom, S. S.: *Surg., Gyn. & Obst.*, 1943, **76:** 438.

Tuberculous arthritis has for long presented the problem of choosing between conservative and operative treatment. Operative treatment itself, if considered the method of choice, poses the problem whether to operate on all age-groups or only on patients past a certain age, the main consideration being operative damage to growing epiphyses. There is also the question whether operation to achieve ankylosis should always, or ever, be preceded by a period of conservative immobilization treatment. In regard to these problems, as they affect tuberculosis of the ankle joint, the author discusses the literature, presents a series of cases and outlines his own conclusions. He presents 25 cases of an average age of 13½ years, the youngest being 14 months. All were eventually positively proved to be cases of tuberculosis. Most had previously been under some form of conservative treatment which accomplished little. Operative treatment was applied to all. Twelve cases required more than one operation to establish bony union. The most important factor causing failure of the primary operation was the presence of secondary infection in the joint. Refusion was carried out 7 or 8 months after operation if there was unsatisfactory clinical and x-ray evidence of fusion. Average time before free weight bearing was 1.2 years, much lower than any results of conservative treatment. Of 25 cases 22 had satisfactory results. The average time of follow-up was 6½ years. The author concludes that the treatment of choice for tuberculosis of the ankle joint is immediate, or at least early, operative fusion regardless of age.

J. R. LACROIX

A Method for Obtaining Venograms of the Veins of the Extremities. Mahorner, H.: *Surg. Gyn. & Obst.*, 1943, **76:** 41.

A method is described for performing venography. A needle is placed in a vein on the dorsum of the foot or at the ankle without cutting down. Normal saline is run in at a fast rate. Diodrast is injected into the saline tube near the intravenous needle. A tourniquet shuts off the superficial venous return in the lower third of the leg and the diodrast enters the deep veins to ascend the leg. Some x-rays are reproduced showing excellent visualization of the deep veins. The author considers visualization of the superficial veins to be more difficult and he warns against thrombosis and even death from the diodrast. J. R. LACROIX

Obstetrics and Gynæcology

An Investigation of the Effect of Ergot Alkaloids. Moir, C. and Russel, C. S.: *J. Obst. & Gyn. Brit. Emp.* 1943, **50:** 94.

Those who prescribe a course of ergot to patients suffering from puerperal uterine infection do so in the twofold belief that the drug will check any tendency to sub-involution, and that it will expel infected material from the uterine cavity. The first of these suppositions has already been discussed; the second will now be considered. In patients presenting symptoms of uterine sepsis, pathogenic organisms are living and multiplying in the uterine wall, and mere contraction of the organ will not get rid of them. Violent activity may, on the contrary, disseminate infection. It is a cardinal rule that all inflamed organs should be kept at rest, and if this is the correct treatment for, say, a septic finger, it is difficult to understand why matters should be reversed for a septic uterus. Further, if by the uterine contraction the blood supply is appreciably reduced there will also be a diminution of the supply of white-blood cells, of natural anti-bodies, and, on occasion, of chemotherapeutic substances. Ergot therapy may thus have a harmful influence. Although we cannot find any sound basis for prescribing a course of ergot for the treatment of puerperal sepsis, special mention must be made of a retention of lochia in the uterus. A small quantity of dark blood—15 to 20 cm.—is often contained in the uterine cavity; this can scarcely be regarded as abnormal. On rare occasions, however, a sharply ante- or retro-flexed corpus uteri may compress the cervical canal at the level of the internal os and lead to the accumulation of a considerable quantity of lochia. In these circumstances an increase of uterine activity may overcome the hindrance to the lochial discharge, although on occasion, a catheter must also be passed in order to ensure efficient drainage. Such cases are rare, and we cannot, therefore, produce figures bearing on the effects of therapy; it seems reasonable, however, to make use of a single full dose of ergot in the treatment of this specific abnormality. If evacuation of retained lochia is observed, the dose may be repeated at discretion. This procedure is quite distinct from the routine, repeated administration of ergot to promote involution or to treat uterine sepsis—practices for which the authors can find no justification.

P. J. KEARNS

The Present Position of Antenatal Care in Obstetrics. Green, J. D.: *J. Obst. & Gyn. Brit. Emp.*, 1943, **50:** 83.

Mention must be made of the most disappointing of all aspects of antenatal care: failure to control the death-rate from toxæmia. Munro Kerr calls eclampsia "this eminently preventable disease" and yet deaths from toxæmia are as frequent as ever. There may be an increased tendency for toxæmia masked by the effect of counter measures. If this is not so then it must be presumed that, on the whole, patients receive inadequate attention. This may be because they fail to attend often or early enough at the clinic, or because the early signs of the disease are missed when the woman is examined. Moreover, examples are not lacking of women correctly diagnosed as suffering from toxæmia being unable to obtain the necessary treatment because of lack of local facilities. Selected statistics of "booked" patients show very low death-rates from the toxæmias of pregnancy, but the high death-rate in the country as a whole remains as a challenge to the medical profession.

Antenatal care is not yet in the right hands and, at the same time, facilities for the treatment of conditions already diagnosed are not always available. In spite of the rapid increase in the number of clinics and in the numbers of attendances, available evidence suggests that only a minority of women yet receive antenatal care. The facilities already in existence cannot be expected to exert a large effect on the maternal mortality-rate. The fact that there is remarkably little year to year variation in any component of the maternal mortality-rate except sepsis, in spite of improvements in obstetrics, suggests that a general adverse factor is influencing all maternal deaths. This factor may have something to do with a change in the habits of women—a tendency for first confinements to occur late in life, for example—or may be due to a widespread tendency to be confined in unsatisfactory institutions. P. J. KEARNS

Pædiatrics

Disturbed Kidney Function in the newborn Infant associated with decreased Calcium:Phosphorus Ratio. Snelling, C. E.: *J. Pæd.*, 1943, **22:** 559.

In a study of 11 newborn infants who were believed to have tetany a retention of nitrogen and phosphorus was found, in addition to the disturbance of blood serum calcium. It is argued that a large number of these cases of so-called tetany of the newborn are probably a result of lack of renal function. The cause of this disturbed renal function may be oliguria and anuria from insufficient fluid intake. In many of the cases the delivery was difficult, also the resuscitation, and evidence of asphyxia and shock were observed. These factors probably contributed to the lack of kidney function which resulted in the retention of phosphorus. Hyperphosphatæmia tends to lower and decrease the ionization of the serum calcium. The symptoms were relieved by the intravenous injection of calcium gluconate and glucose in saline. In two of the cases there was an extreme form of nitrogen and phosphorus retention due to abnormalities of the kidneys incompatible with life. It would appear that disturbed kidney function is a cause in some of the cases in the newborn infant in which twitching, convulsions, carpopedal spasm and cyanosis are seen. S. J. USHER

The familial Epidemiology of Rheumatic Fever, Genetic and Epidemiologic Studies. II. Epidemiologic Studies. Wilson, M. G., Schweitzer, M. D. and Lubschez, R.: *J. Pæd.*, 1943, **22:** 581.

In this elaborate survey the records of 688 cases were selected from the files of the Children's Cardiac Clinic of the New York Hospital. Various methods of genetic analysis were used and analytic procedures were applied to many subdivisions of the data. The authors show that in families selected because of the presence of at least one rheumatic child the distribution of cases follows the general laws of inheritance. They conclude that susceptibility to rheumatic fever is hereditary. The genetically susceptible individual manifests or develops the disease by the average age of 6 years. Rheumatic fever was not found to exhibit the usual characteristics of a communicable disease. The observations are not consistent with the operation of any specific bacterial agent. The possible rôle of other environmental factors such as climatic or dietary factors was not entirely excluded. It is possible that both genetic and non-genetic factors are operative in rheumatic fever. These studies indicate that the most important factor in the pathogenesis is the genetic susceptibility of the host. S. J. USHER

Urology

Dissolution of Phosphatic Urinary Calculi by the retrograde Introduction of a Citrate Solution containing Magnesium. Suby, H. I. and Albright, F.: *New Eng. J. Med.*, 1943, **228:** 81.

The authors report further experiences in dissolving urinary calculi by the retrograde use of citrate solution. The marked irritation of the bladder resulting from the original solution was found to be largely done away with by the addition of magnesium, although it still occurred in certain cases. Various methods were employed to get the solution in contact with the stones, such as nephrostomy tubes, single and double ureteral catheters and a combination of nephrostomy tube and ureteral catheter. Simple apparatus is described to secure intermittent introduction of the solution.

Seven selected cases are reported in six of which the citrate solution was used successfully, in two cases being introduced through ureteral catheters and in four through nephrostomy tubes. The seventh case met with no success because the solution was prevented from coming in contact with the stone by a thin coating of unidentified material, possibly old blood clot.

The advantages of an air pyelogram are stressed as a means of following the course of dissolution and for determining whether a stone is in contact with the kidney pelvis. The importance of the x-ray in the determination of the solubility of renal calculi is also emphasized. NORMAN S. SKINNER

Ophthalmology

Marginal Hæmorrhage on the Disc. Partial Cross Tearing of the Optic Nerve. Clinical and Histological Findings. Loewenstein, A.: *Brit. J. Ophthalmol.*, 1943, **27:** 208.

The author states that blunt injuries of the eye lead to different ophthalmoscopic pictures. Retinal and choroidal hæmorrhage combined with blood in the vitreous are common, as are choroidal rupture and retinal detachment. Rupture of the posterior ciliary arteries, evulsion of the optic nerve and bleeding within the optic sheath are found less frequently. The latter occurs in the frequent cases of fracture of the base of the skull and is frequently combined with papillœdema. But even gross skull fractures do sometimes occur with insignificant changes at the disc.

He describes an ophthalmoscopic picture which is not mentioned in the literature, as far as he is aware, and puts forward an explanation on the basis of some seemingly new histological experience. He cites a case with a perforating injury through the sclera. The ophthalmoscopic picture fourteen days after the injury, besides the dark diffuse vitreous opacities, shows a clear red arcuate band visible at the temporal margin of the disc. The breadth was approximately that of the central vein, and with both ends slightly thinned. The shining red arc was outlined temporally by delicate specks of the pigment ring. Three fine radially striate hæmorrhages, which seemed more superficial, were present, temporal, nasal and inferior to the disc. These latter had disappeared two months after the injury but the arcuate marginal hæmorrhage remained unchanged. He then conjectures that the red crescent is caused by a bleed-

ing within the optic sheaths, subdural or subarachnoid—infiltrating Elschnig's border tissue. Thus in this case the border tissue hæmorrhage would shine through the pellucid lamina vitrea choroideæ, and the marginal hæmorrhage would be outlined temporally by the pigment ring. He states that he cannot offer any histological proof for this assumption.

He describes three cases in which there was a tear of the optic nerve at the insertion of Bruch's membrane, discovered in a relatively small number of eyes examined histologically. They happened to occur in three different conditions (1) trauma; (2) hæmorrhagic glaucoma; (3) expulsive hæmorrhage. It seems that the insertion of Bruch's membrane is a point where tears of the optic nerve may occur more easily than anywhere else. If the nerve is pushed backwards by a stronger force, for example, a foreign body such as a bullet, the nerve fibres may rupture at the same place. Actually that appearance is *evulsio nervi optici* clinically and anatomically. If the acting force is not strong enough to cause an evulsion of the optic nerve, complete or incomplete tears occur, as in von Michel's two cases, in front of the cribriform plate. The tear in these three cases was caused by an instantaneous subretinal hæmorrhage.

A. ERNEST DOULL

Neurology and Psychiatry

The Psychoneurotic in the Armed Forces. Michael, N., Major, M.C.: *Am. J. Psychiat.*, 1943, **99**: 5.

The author defines a psychoneurosis as a defense mechanism through which the patient protects himself against difficult environmental stress and states that it is a necessary adaptive reaction that springs into activity at the time of need. This reaction is not a conscious effort to deceive, avoid danger or attract attention, nor does it arise at the will of the individual. It is not a volitional act. Emphasis is placed on the fact that while a psychoneurotic may be able to adjust fairly well in civilian life where he can avoid threatening experiences, change his environment, work part-time or rest when necessary, in the armed forces the danger, stress, discipline, and necessity of facing issues increases the anxiety and symptoms of these patients. It is therefore essential that these individuals should be recognized and a proper evaluation made of their personality make-up with particular reference to mental fitness for military service. Physicians not psychiatrically minded are apt to consider psychoneurotics as malingerers, and are frequently hostile to such patients who have no physical basis for their complaints. The term malingerer is usually applied to those who consciously try to deceive by imitating symptoms of illness. Close observation of suspected malingerers reveals that they have had personality disorders and maladjustments in civilian life. The author's experience leads him to believe that no amount of punishment will make a malingerer into a good soldier. He concludes that the psychoneurotic is mentally and constitutionally unsuitable for army life. His use on limited service is questionable. He can contribute much more to the war effort by remaining in civilian life.

BARUCH SILVERMAN

Psychiatric Aspects of Obesity in Children. Bruch, H.: *Am. J. Psychiat.*, 1943, **99**: 5.

This article is concerned with a study of 200 obese children. The age range was from 2 to 13 years. In all cases obesity developed before puberty. Many of the patients had been suspected of suffering from an endocrine disorder such as hypothyroidism, hypopituitarism, sexual maldevelopment or so-called pluriglandular dysfunction. Careful examination revealed no justification for an endocrine diagnosis in these cases nor was there evidence of intracranial tumour. A study of the life history of these children, their family background and the difficulties which they had in making adjustments to their environment indicated that psychological factors play a determining rôle in the development of obesity in children. Excessive eating and withdrawn behaviour appeared to be characteristic of this group of children who possessed a readiness to respond in this way to anxiety provoking situations. Excessive food intake seemed to have an alleviating effect on the child's anxiety. Such reactions were found to exist particularly in children who feel insecure and inadequate because of over-protection by the parents, as well as other emotional problems which result from maladjustments in the family relationships. The greediness with which the child incorporates as much as possible of his environment and the selfishness with which he expects and accepts personal service without giving anything in return are all the expression of his basic dissatisfaction. This concept of obesity as an expression of a thwarted personality development leads to the conclusion that treatment of obesity in children can not prove effective unless one takes into consideration the psychological factors which may be the major determinants in the development of this condition.

BARUCH SILVERMAN

The Conditioned Reflex as a Treatment for Abnormal Drinking. Thimann, J.: *New Eng. J. Med.*, 1943, **228**: 333.

Chronic alcoholism is an important medical problem. Results of treatment have always been statistically poor by whatever method employed. The author bases his treatment upon the fact that the ingestion of tainted food causes sickness, disgust and abhorrence for this kind of food for a long time and to achieve this conditioned reflex with alcohol he employs a modification of the emetic mixture originally devised by Voegtlin and Lemere. This modified mixture is composed of a solution of emetine 50 gr., pilocarpine 15 gr., ephedrine 30 gr., in 40 c.c. of water. Of this solution 0.4 to 1 c.c., is injected intramuscularly four to twelve minutes before a drink is given to the patient. All extraneous auditory, olfactory and visual stimuli must be eliminated and the conditioned stimuli emphasized. The former is achieved by a sound-proof treatment room of a drab colour devoid of all unnecessary furniture and the latter by a purposeful exaggeration of the clinking of bottles and glasses, the gurgling of liquor being poured into glasses and the sounds of retching and vomiting. No food or sedative is given within twelve hours of treatment.

The results of treatment are better if psychopathic and insincere patients are excluded. Treatments are given four to seven times on successive days, and repeated once after intervals of one, two, three, six, nine and twelve months. In addition to the above, the author employs psychotherapy and sees the patients weekly throughout the period. Of the 43 patients treated, 27 have remained completely abstinent, although it is admitted that this method of treatment has only been employed for a period of seven months.

NORMAN S. SKINNER

Dermatology

Thrombocyte Deficit. The Behaviour of the Blood Platelets in Diseases of Vascular Stasis of the Extremities. Maynard, M. T.-R. and Hollinger, N.: *J. Am. M. Ass.*, 1943, **121**: 1194.

The authors have used a novel approach to studies of hypostatic diseases of the legs by comparison of platelet counts in capillary blood from the sound limb, the affected limb and the ear, all taken at the same time.

If the circulation is slowed or otherwise becomes incompetent in an extremity so that nutritional tissue-damage appears, this damage is ascribable to failure of oxygen-supply and failure to remove carbon dioxide and other metabolites. Inflammation and finally tissue-death ensues. Within these areas the vasa vasorum fail in their nutritional function and vascular tone is lost. The vicious circle is thus completed by dilatation of the veins, a further slowing of circulation, and damage to the intima of the larger veins. With this stasis the thrombocytes drop from the axial stream and adhere to the damaged intima. Partial thrombocyte disintegra-

tion occurs in the white thrombi thus formed. As the thrombocytes are considered to be the main vehicles for histamine in the circulating blood, this is released from the breaking up of the platelets, to play an important part in skin sensitization. The picture of the locally-produced dermatitis, often with ulceration, may further be complicated by dermatitis in other areas, most usually those exposed to light, the katabolites resulting from cellular disintegration having a photo-sensitizing effect.

The count in the blood from the affected lower extremity shows a pronounced lowering in comparison with that from the ear, and usually a corresponding reduction in comparison with the unaffected leg. The side affected was not clearly indicated in a small proportion of counts (16.4%) and in some of these instances it later appeared that the low count on the apparently unaffected side was the first indication of tissue damage there. In many of the cases the ear count was subnormal, and the fact that these were long-standing cases suggests that platelet damage in a damaged area may exceed platelet production in sufficient amount to depress the normal total count.

It is suggested upon the basis of a thrombocyte deficit that it may be possible in a given case to predict whether injection of varicose veins, surgical or other radical treatment, can be done successfully or at least without bad results. In the cases proposed for treatment, if local support and large doses of ascorbic acid (200 mgm. daily) does not result in an increasing platelet count in 3 to 6 weeks prognosis was considered poor for complete recovery. D. E. H. CLEVELAND

Pathology and Experimental Medicine

The Placental Transmission of Protective Antibodies against Whooping-Cough, by Inoculation of the Pregnant Mother. Cohen, P. and Scadron, S. J.: *J. Am. M. Ass.*, 1943, **121:** 656.

Whooping-cough in very young infants is accompanied by a high mortality. It would appear that the young infant does not have the capacity to respond to whooping-cough immunization in the first two months of age. Young infants inoculated with Sauer's vaccine are said to have contracted whooping-cough on exposure as frequently as the uninoculated. The idea behind the experiments reported in this article was that possibly mothers inoculated in the last trimester of pregnancy with whooping-cough vaccine might transfer a passive immunity to the baby. The plan was to inoculate the pregnant woman with a potent pertussis vaccine in the 5th or 6th month of pregnancy, using 6 doses at 2 weeks' intervals and totalling 150 billion organisms. For various reasons not all the mothers received the complete series. A number of moderately severe local reactions occurred, but systemic reactions were minimal; pregnancy did not appear to be affected in any way.

Blood was taken from the mother before inoculation and from mother and baby at the time of birth for the titration of antibodies. A group of uninoculated mothers and their babies served as controls. The antibodies studied were, agglutinins, complement fixing antibodies and protective antibodies. Of these the last named were considered probably the most reliable. The technique of the determination of the protective bodies was as follows: 0.2 c.c. of serum to be tested was injected intramuscularly into mice 19 to 20 hours previous to an intraperitoneal injection of a multiple killing dose of virulent *H. pertussis* suspension. The serum was considered positive when 30% of the mice survived.

A study of a few uninoculated mothers and their babies show in all cases no agglutinins or complement-fixing antibodies, but in a few cases a slight amount of protective antibodies. In the case of 29 mothers inoculated before the birth the great majority of mothers and babies at birth showed the presence of fairly high titres of agglutinins and complement-fixing antibodies and all the mothers and 27 of the 29 babies (2 were not tested) showed substantial amounts of protective antibodies. The conclusion is that the babies were born with an immunity to whooping-cough. Whether the immunity was all passive or partly active or how long it would last has not yet been determined.

FRANK G. PEDLEY

Hygiene and Public Health

Detection of Tuberculosis in School Teachers in the Province of Quebec. Laberge, L.: *Canad. J. Pub. Health*, 1943, **34:** 121.

In July, 1940, the City of Quebec passed a by-law compelling all teachers of the School Commission to undergo a clinical and x-ray examination of the lungs before returning to school in September, 1940. Five hundred and twenty-three teachers were x-rayed and 16 were required to withdraw on account of active or chronic tuberculosis.

In May, 1941, the Provincial legislature passed an act along similar lines. The following table gives the results of the examination of 16,524 teachers in the Province of Quebec outside the City of Montreal:

	No. examined	*Active tuberculosis*	*Non-active tuberculosis*	*Rejected*
Female—				
Religious	6,152	59 (0.95%)	65 (1.0%)	115 (1.8%)
Lay.....	7,401	34 (0.46%)	23 (0.31%)	63 (0.85%)
Male—				
Religious	2,155	14 (0.169%)	13 (0.61%)	27 (1.2%)
Lay.....	816	5 (0.61%)	5 (0.61%)	7(0.186%)
Total..	16,524	112 (0.68%)	106(0.164%)	212 (1.2%)

Among the 4,695 teachers of the Catholic School Commission of Montreal 15 active cases of tuberculosis were diagnosed and the same number rejected. Among the 1,533 teachers of the Protestant School Commission of Montreal 1 case was rejected. FRANK G. PEDLEY

Encephalitis. Hammon, W. McD.: *J. Am. M. Ass.*, 1943, **121:** 560.

Hammon favours classifying the encephalitides as found occurring in recent years in Canada and the United States as arthropod-borne virus encephalitides. In this paper data are given regarding outbreaks in the states of Washington, Arizona, New Mexico, and Texas and certain epidemiological conclusions are suggested.

Sixty-nine human cases are reported from the above mentioned states. Of these virus neutralization tests were performed on 61. One was positive to the eastern equine virus, 32 were positive to the western equine virus, and 44 to the St. Louis virus. The blood of 52 well persons living in the Yakima Valley, Washington, was tested for antibodies. It was found that 52% reacted positively, and it was noted that the longer the residence in the Valley the higher was the rate of reaction. It is evident, therefore, that the finding of antibodies is of itself not diagnostic unless a previous record of blood is available. In the areas studied by the author outbreaks of the disease had the following characteristics: (1) annual epizootics of encephalomyelitis in horses; (2) intermittent flooding (usually by irrigation); (3) high summer temperatures; (4) large numbers of mosquitoes. In the Yakima Valley in 1941 an examination of 12,000 mosquitoes and 4,000 other arthropods demonstrated the St. Louis virus or the western equine virus in 8. The mosquitoes were *Culex tarsalis.*

Despite the fact that there have been annual outbreaks of encephalomyelitis in horses in the Yakima Valley since 1938 there is no numerical relationship between the number of equine and human cases. Vaccination of horses does not appear to reduce the in-

cidence of human cases. These facts render it unlikely that either man or horse acquires the disease directly from each other. Studies of vertebrates in the Valley indicate that a substantial proportion of domestic mammals and fowl and an appreciable proportion of wild mammals and birds have antibodies both for the St. Louis and western equine viruses, but no vertebrate except man and the horse has been found to become ill with the disease.

These studies to date suggest (1) that mosquitoes and possibly ticks and reduviids may be carriers of the disease; (2) that the reservoir of infection is probably not the horse, but some other animal or bird.

FRANK G. PEDLEY

Obituaries

Lewellys Franklin Barker, emeritus professor of medicine at Johns Hopkins, died at Baltimore on July 13 after a year's illness in his 76th year. He was born at Norwich, Ont., in 1867, the son of a Baptist minister, and graduated in medicine at the head of the class of 1890 at Toronto University. He was the first of a succession of Toronto graduates who distinguished themselves in Osler's clinic in the great early days of the Hopkins: T. McCrae, H. C. Parsons, T. B. Futcher, C. D. Parfitt, N. B. Gwyn. Osler was always sensitive about these appointments and denied responsibility, so much so that he was once heard gravely informing an enquirer that he himself came from the "Northern part of the State of New York". Most of them, indeed, got in by a sort of back door or feeder, a summer refuge for babies near Baltimore whose superintendent, after his experience with Barker, always dunned Ramsay Wright to send him another good Toronto man. Barker, after his service there, hung around the Hopkins hoping for a vacancy until nothing was left to him but his fare home and his gold watch. He was on the point of selling that when Osler found a place for him. He thus joined his lifelong friend and colleague, the distinguished pupil and successor of Kelly, Dr. T. S. Cullen, who had got his appointment when assisting Kelly at an operation at the Toronto General Hospital in 1891. Cullen was runner-up, silver medallist, in Barker's class, but was ranked ahead of him in the examination in medicine. When the professor's colleagues protested, H. H. Wright replied, "Of course Barker knows more medicine than Cullen but, damn it, I didn't want a book!" Barker had written 52 pages, Cullen eight.

With intervals of study abroad Barker worked some six years at Hopkins, first with Osler, then with Welch, and with Mall in anatomy. His chief interest at that time was in the physiology and finer anatomy of the nervous system. From 1900 to 1905 he was professor of anatomy at Rush in Chicago until he was recalled to succeed Osler at Baltimore. Such was Osler's opinion of Barker's intellect that he recommended him in preference to Thayer, his favourite and clinically more faithful senior assistant. With his laboratory training Barker was the protagonist of the full-time clinical professorship, and he had desired to be appointed on that basis in 1905, but by 1913 when the necessary endowment was found and the opposition of the other clinicians, including Osler, was overcome, Barker's financial obligations were such that he had to make way for a younger man, Janeway. It is a tribute to the spirit of the place that the seniors, Thayer and Barker, always continued to work and teach harmoniously as clinical professors under younger men.

Among his more important works are: "The Nervous System", 1899; "Clinical Diagnosis", 3 vols., 1916 and 1923; "Blood pressure", 1924; and "Treatment of the Commoner Diseases", 1934. A year ago he fortunately published his illuminating autobiography, "Time and the Physician" (New York, Putnam's). He was a striking personality, a man of great energy and ability and of wide interests.

Captain Hartley R. Conn, R.C.A.M.C., of Mimico, died in Toronto Military Hospital on August 3. He was a graduate of University of Toronto in the class of 1914. In the last war he was stationed for the duration in Camp Borden. In 1940 he re-enlisted and was posted to an internment camp near Toronto. Dr. Conn served as Coroner in Mimico since 1919 and was a member of the staff of St. Joseph's Hospital, Toronto.

Captain D. Fraser died on July 29 at Christie Street Military Hospital, where he had been a patient for several months. He was 51 years old.

Capt. Fraser was born at Stratford, Ont., and graduated in medicine from McGill University in 1918. For a number of years he was on the staff of Burwash Reformatory. Following enlistment in the R.C.A.M.C. in 1941, he was stationed in Fredericton, N.B.

Surviving are his widow, two stepdaughters, and a sister.

Dr. Herman Goldberg, of Edmonton, passed away on May 8 from heart ailment at the age of 51 years. Born in Lithuania in 1892 and studied in Breslau and Prague finally graduating from Warsaw in 1917. He practised in Russia for some years, took postgraduate work in skin and venereal diseases and in 1928 came to Canada.

After spending some time in studying the English language he took the examination of the Medical Council of Canada in 1930 and registered in Alberta in 1931, where he since practised until he passed away. His widow and son live in Edmonton where the son is taking medicine at the University of Alberta.

Dr. Eardley Herbert Greene, aged 81, veteran of the Northwest Rebellion, died recently at his home following a brief illness. He had practised medicine for more than 50 years in Toronto.

Dr. Greene was born in Toronto, the son of Columbus H. Greene, of United Empire Loyalist stock. He received his early education at Trinity College, Port Hope, and in 1885, enlisted for service in the Northwest Rebellion under Gen. Otter. Returning to Toronto, he entered Trinity College and graduated in medicine. He took postgraduate work in New York City.

Dr. Greene was a member of the Battleford Column Association, Zetland Lodge, A.F. and A.M. and the Academy of Medicine. He was an Anglican and his recreations were hunting and fishing.

Surviving are a daughter, Eardley Greene, and a brother, H. Vincent Greene of Montreal.

Dr. Magnus B. Halldorson, of Winnipeg, died on July 6, at the home of his daughter in New York. Born in Iceland, he came at an early age with his parents who settled first in North Dakota and later came to Winnipeg. He studied medicine here, graduating in 1898. He practised at Bottineau, Hensel and Souris, N.D.—returning to Winnipeg in 1917. Although a general physician, he was especially interested in disease of the chest and was a life member of the American Tuberculosis Association. He is survived by two daughters, and a son in the American Navy.

Dr. Stanley John Keyes, F.R.C.S., F.A.C.S., a former medical officer of health for the City of Kingston, died August 5 in the Kingston General Hospital after one day's illness.

Dr. Keyes, who was born in Kingston 63 years ago, attended the public schools and Kingston Collegiate Institute and graduated from Queen's Medical College in 1905. He was recognized as one of the outstanding anæsthetists in the province. In recent years he was assistant professor of surgery at Queen's Medical College. He acted as medical officer of health for the city on a part-time basis from 1924 to 1931. In recent months he had taken over the post as director of the fever therapy at the Kingston General Hospital. His wife died in 1937.

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Dr. Alexander Kerr Roy died at his home in North Sydney, Nova Scotia, July 10. He was sixty-one years of age. He had not been in good health for some months, but death followed a short, acute illness.

Dr. Roy was born at Maitland, N.S., and was educated in the schools of Hants county. In 1903 he received his Arts degree and for several years he served as a school teacher in North Sydney. In 1910, he graduated from Dalhousie in medicine. His first practice was in Port Morien but he soon returned to the scene of his teaching where he served till his death. Following in his professional footsteps are three of his sons, Dr. Wallace Roy, Halifax, Lex and Douglas of the Dalhousie Medical School.

Dr. Charles Herbert Warriner, aged 51, died on August 1, at his home. Dr. Warriner was born in Toronto and attended Harbord Collegiate and University of Toronto. He had practised in the Carlton-College district for 28 years. A bachelor, he is survived by a step-sister, Miss Lena Simonds, Toronto, and four step-brothers, James, George and Henry, Toronto, and Fred, Vancouver.

News Items

Alberta

Hon. Dr. Cross, Minister of Health, has just announced that the $500,000.00 Tubercular Hospital which the Government had planned to erect in the City of Edmonton on the University campus could not be built this year owing to the fact the Priorities Board refused permission owing to shortage of labour and material. The Dominion wants large scale projects held until after the war to provide an immediate post-war program.

Dr. G. H. Malcolmson, Director of Cancer Services for Alberta has announced that during the past year 2,053 patients had been examined at the free clinic. This number is 913 greater than 1941. It was found that 51% of those examined had cancer.

The District Association meetings have been called off for the present as the men are too busy to take the time necessary to prepare and deliver the papers. Further many of the Districts are so short of men it would be a small group if everyone were able to attend and that is impossible.

Preparations are being made for the Annual Provincial meeting which will be held in the Palliser Hotel, Calgary, September 13 to 15. Owing to the large number of men in the Armed forces in Alberta it is estimated that the meeting will have a record attendance. Special papers will be presented by physicians in uniform which are sure to be of interest and benefit to all who attend.

Probably the question that is being most considered by the physicians in civil work is that of the proposed Federal Health Insurance and the Program Committee has set ample time for this subject and it will commence with a round table conference; specially informed men will open up the interesting question.

The Workmen's Compensation Board has notified all men with mine contracts that after the end of the year they will no longer approve of such contracts. At the last session of the legislature a new Workmen's Compensation Act was passed, exempting the workmen from any contribution to the Medical Aid Fund, whether this will mean that the men will have less voice in engaging the physicians and the companies more, remains to be seen. It is further thought that if and when health insurance is adopted the entire picture may be changed. G. R. LEARMONTH

British Columbia

The forthcoming meeting of the British Columbia Medical Association, which is to be held in Vancouver on September 8, 9 and 10, promises to be a good one. The list of speakers is as follows: Dr. William Boyd, Professor of Pathology, University of Toronto; Dr. R. F. Farquharson, Assistant Professor of Medicine, University of Toronto; Dr. D. Sclater Lewis, Professor of Therapeutics, McGill University; Dr. G. Gavin Miller, Associate Professor of Surgery, McGill University; Major Hall Seely, Medical Corps, United States Army; Dr. R. R. Struthers, Professor of Pædiatrics, McGill University; Colonel W. P. Warner, R.C.A.M.C., Consultant in Medicine, formerly Associate Professor of Medicine, University of Toronto.

These names would appear to guarantee full value for the time which anyone may spend in attending this meeting.

Recently medical circles in British Columbia have been somewhat exercised by news that came out in the daily press of a proposed hospitalization scheme for the Lower Mainland. It was stated that six or seven of the main hospitals had practically agreed upon a scheme which would give hospitalization to certain groups of workers on a basis of $1.50 a month for families of any size, and 60c a month for single men. Apparently this was premature and the information was not in any way authorized by any of the hospitals concerned. Matters are still in a highly embryonic condition but there is undoubtedly a movement on foot in the direction of group hospitalization. In view of the serious shortage of beds and nursing personnel, it is obvious that any such proposals will have to be very seriously and carefully considered before being put into operation.

Captain J. L. Blaisdell, R.C.A.M.C., is in Vancouver and has been lecturing to medical personnel in the Military Hospital on "Chemical warfare". The medical profession at large has been invited to these meetings.

Some of our British Columbia men are probably now on the scene of active service in Sicily and elsewhere in the Mediterranean. Among these is Captain F. L. Skinner, of Vancouver.

Dr. J. A. Gillespie, of Vancouver, has been elected to senior membership in the Canadian Medical Association. J. H. MACDERMOT

Manitoba

On July 17, Dr. Alexander Gibson, F.R.C.S., head of the Orthopædic Department, Winnipeg General Hospital, left to assume the position of orthopædic surgeon in the Canadian Red Cross Hospital at Kilbride near Glasgow. Dr. Gibson served in the 1914-1918 war.

Major Morley Elliott, D.P.H., R.C.A.M.C., who practised in Wawanesa and later was connected with the Manitoba Government Department of Health has been promoted to be a lieutenant-colonel and will command A 22, Medical Training Centre, at Camp Borden.

The Cancer Relief Research Institute situated in the Winnipeg General Hospital is now being equipped with an additional 200,000-volt x-ray machine at a cost of $4,800. On its installation the institute will have three machines, one of 400,000 volts for deep x-ray therapy and two of 200,000 volts for the treatment of lesser ailments.

Lieut.-Commander Gordon Fahrni, R.C.N.V.R., son of Lieut.-Col. Gordon S. Fahrni, R.C.A.M.C., and Mrs. Fahrni, is in Winnipeg on six weeks' leave. He is on loan from the R.C.N.V.R. to the Royal Navy, and in July, 1942, he was awarded the Distinguished Service

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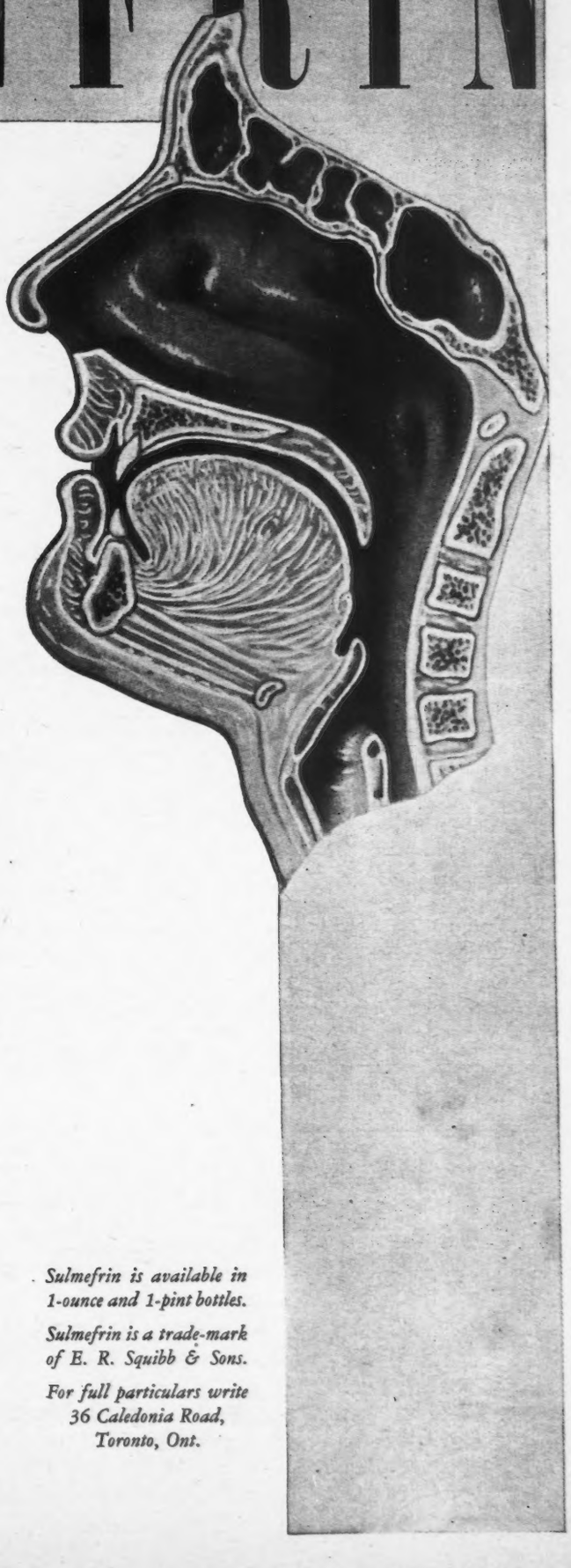

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Cross. He was surgeon in charge of a mine-sweeping flotilla of 11 ships in action on the North Sea route to Russia when his ship was sunk in action and he was wounded. He graduated in medicine from Manitoba University in 1940.

Miss Margaret E. Nix, a former member of the teaching staff of Daniel McIntyre Collegiate, has been appointed provincial director of public health education in succession to Dr. Marguerite Swan, O.B.E., who resigned her post on account of her marriage. Miss Nix will be sent to Ann Arbor School of Public Health for a special course. ROSS MITCHELL

New Brunswick

Major W. O. McDonald is recovering from a serious illness at his home in Saint John.. Major McDonald completed the survey for the Procurement and Assignment Board before the onset of this illness and has received many complimentary expressions on the excellence of this report.

Several members of the New Brunswick Medical Society have in recent months proceeded overseas on Military Duty. These include, Lt.-Col. H. B. Bustin, Major F. C. Jennings, Major W. J. Murphy, Major C. O. McKay, and Major Austin Clarke, all of Saint John.

Recent medical enlistments in the R.C.A.M.C. include Dr. H. H. Sharpe, of Sussex and Dr. V. J. Sadovsky, of Saint John, N.B. A. STANLEY KIRKLAND

Nova Scotia

Dr. G. M. Peters' shingle hangs high again, the collieries belch smoke again, miners sweat grime as their picks rattle against the black coal face, and all is well in Glace Bay. The miners had been uneasy for some time. One after another, their physicians had closed up their offices, pulled down their shingles, and gone off to war. Dr. Peters wavered between duty and duty, between battle field and coal field. He chose the less smokey, more dangerous. The miners did not waver. They struck. No longer could the Dominion Coal Company promise them full medical care for their families. They wielded that most potent of the labouring man's weapons. Pits No. 4, 11 and 24 walked out. So Dr. Peters is back in his office again, when he is not rushing about the district. Sometimes he pauses to think about it all, but his dreams of medals for distinguished service are shattered by the ringing telephone.

Dr. Eleanor Wood, D.P.H., of Vancouver, and more recently staff physician in a Toronto aircraft factory, has taken over the work of Dr. E. M. Fogo, assistant health officer for Halifax. Dr. Fogo is doing postgraduate work, under direction of the Rockefeller Foundation.

The Blanchard Fraser Memorial Hospital, Kentville, warns its community that unless more nursing aid appears it may have to close its doors. Appeals have been broadcast for part-time nurses and general help. Nearby, at Western Kings Hospital, Berwick, only urgent cases can be admitted, because of staff shortages. It is pointed out that high rates of pay for army nurses offer competition which cannot be met by community supported hospitals.

Dr. E. A. Brasset, of Little Brook, has moved to Antigonish.

There are seven thousand people in Stellarton. There will be only one physician for the two weeks the Reserve Army is in camp—unless the appeals with which the Stellarton miners have stormed Ottawa and Halifax have some effect. ARTHUR L. MURPHY

Ontario

A Convocation of the University of Toronto was held on July 30. One hundred and twenty graduates in medicine received their degrees. A reception by President Cody and members of the Faculty and Senate was given to the graduating class and their friends in the quadrangle of Hart House following the ceremony. Practically every one of the new graduates was in uniform. President Cody and Surgeon-Captain MacCallum gave addresses.

At Queen's University and at the University of Western Ontario convocations were also held. Forty-eight graduates from the former and thirty-one from the latter were given their degrees. As in Toronto the classes were in military uniform.

The *Ontario Medical Review* has appeared in its first number. It replaces the Bulletin which has been the official organ of the Ontario Medical Association for some years. The Review appears in new dress with a larger and clearer type. The feature article is a paper by Brigadier Meakins on "The rôle of the doctor in the Army" given as the keynote address at the O.M.A. annual meeting in Niagara Falls this year.

Dr. W. J. Holley, Pathologist to the Brantford General Hospital, has joined the R.C.A.M.C. This leaves a hospital of two hundred beds without an expert in charge of its laboratories. A similar situation exists in other hospitals and is a serious matter. Reports on tissue can be had from the Provincial laboratories but biochemical assays and routine bacteriological work must be done by technicians or left undone.

Lt.-Col. D. A. Warren who has been officer commanding Toronto Military Hospital in Chorley Park is proceeding overseas in charge of a hospital unit. He is succeeded by Lt.-Col. Lynn Gunn, of Winnipeg, who comes from the R.C.A.M.C. reception centre board at Fort Osborne Barracks, Winnipeg.

M. H. V. CAMERON

Quebec

Dr. A. J. Gilchrist has been appointed Assistant Chief Medical Officer of the Canadian National Railways. Dr. Gilchrist, who was formerly Medical Officer in charge of treatments and examinations, is a native of Barrie, Ont., and was educated in Peterborough and Toronto. He graduated in medicine from the University of Toronto in 1905. For several years he did postgraduate work in London, England, and obtained the degrees of M.R.C.S., L.R.C.P.

On the outbreak of the last war Dr. Gilchrist obtained a commission in R.A.M.C. He landed in France November 8, 1914, as Medical Officer of the 1st Battalion, Worcestershire Regiment, and was awarded the Mons Star and bar. After sixteen months in the front lines he was transferred to Rouen where he had charge of the surgical division of a 1,300-bed base hospital. He was in France until April, 1919, being mentioned three times in despatches and awarded the O.B.E. (military division) and Military Cross. He was demobilized with the honorary rank of Major and on his return to Canada was placed in charge of the surgical clinic at the Christie Street Hospital, Toronto.

In 1929 he was requested to join the Medical Department of the Canadian National Railways in Montreal to organize and have charge of periodic and other examinations. He has also carried on most of the medico-legal work for the railway in Montreal.

Le capitaine Jean de Saint-Victor de l'hôpital du St-Sacrement de Québec vient d'être promu Major. Le Capitaine de St-Victor est depuis deux ans en Angleterre avec la 18e Ambulance Canadienne de campagne.

La tuberculose à Montréal: le nombre des décès par tuberculose, sous toutes ses formes, s'élevait en 1942 à

725, comparativement à 678 en 1941. Pour les premiers six mois de 1943, il y a 389 décès inscrits, ce qui laisse prévoir une augmentation pour l'année courante; pendant cette période, 70.1 pour 100,000 sont attribuables à la forme pulmonaire. JEAN SAUCIER

General

The following honours are announced.

Colonel L. C. Montgomery, M.C., M.D., C.M.(McGill), F.R.C.P.(C), has been elected Honorary Fellow of the Royal College of Physicians (London).

Major R. Palmer Howard has been admitted as Member of the Royal College of Physicians (London).

Captain Francis S. Brien, B.A., M.D.(Tor.), M.R.C.P.(Lond.), has been elected a Fellow of the Royal Society of Medicine, London.

Dr. Donald C. Balfour, Chief of the Division of Surgery of the Mayo Foundation has been elected Honorary Fellow of the Royal Society of Medicine (London).

The following have been made Honorary Fellows in the Royal College of Surgeons.

Dr. Wilder G. Penfield, M.A., B.Sc.(Oxford), M.D. (Johns Hopkins), D.Sc., F.R.S.C., F.R.C.S.(C).

Professor N. S. Shenstone, M.D., C.M.(Tor.).

Colonel J. A. McFarlane, R.C.A.M.C.

Increase in Narcotics Thefts.—Colonel C. H. L. Sharman, chief, Narcotics Division, Department of Pensions and National Health, when he was addressing the annual conference of the Chief Constables' Association of Canada in Toronto recently, stated that there has been a marked increase in thefts of narcotics throughout Canada.

For some years past there has been an almost complete cessation of the introduction of illicit narcotics into Canada, Colonel Sharman pointed out, with the result that criminal addicts have been obliged to obtain supplies from legitimate sources. Since these addicts obviously have not been able to obtain the quantities they desire they are paying fantastic prices for such quantities as they are able to secure. These prices have created a situation which also interests professional criminals who are not necessarily addicts and have not hitherto been remotely interested in narcotics. Since concentrated supplies of narcotics are available in wholesale premises, hospitals and some of the larger retail drug stores, these naturally become more interesting to criminals because the standard of protection in such places are not as high as that of a bank, he said.

While 46 narcotics robberies were known to have been committed in 1938, these rose to 51 in 1939, 57 in 1940, and in 1941 and 1942 the figure jumped to 79, while for the first six months of this year it has already reached 121. In addition, Colonel Sharman pointed out, there have been 37 attempted but unsuccessful narcotic thefts this year.

Thefts from retail drug stores increased from 18 in 1938 to 36 in 1942, with 20 for the first six months of 1943. Thefts from physicians and hospitals increased at an even correspondingly higher rate. Only one robbery of a wholesaler was reported in the past three years, committed in Montreal, and none so far in 1943.

Col. Sharman pointed out that the extent of replenishments of the Canadian hospital or drug store necessitated by such robberies is an important factor in these days of low reserve stock. He pointed out that Canada is exporting almost daily narcotics to "our friends in need elsewhere" and that it was imperative to keep a close check on available supplies.

He stated that a recommendation to abolish "D" licenses for doctors' cars had produced a community of thought in this regard which may produce results. In closing, Colonel Sharman expressed his thanks to the chief constables of Canada for their most valuable aid in this difficult problem of narcotic control.—*Drug Merchandising*, July 15, 1943.

Legal Medicine Conference and Seminar.—*I. Conference.* The Massachusetts Medico-Legal Society in conjunction with the Department of Legal Medicine of Harvard Medical School has arranged for an all-day Conference to be held at the Mallory Institute of Pathology, Boston City Hospital, on Wednesday, October 6, 1943. This will be open to any registered physician, lawyer, police official, criminal investigator, senior medical student or other person whose duties are associated with medico-legal topics.

It will include lectures, demonstrations, and informal discussions concerning many subjects in legal medicine, particularly stressing results of some more recent methods. No limit has been made for the number of conference attendants, there is no fee, and advance application is not essential. Advance notice of intention to attend would be helpful, however, and should be addressed to Dr. William H. Watters, Department of Legal Medicine, Harvard Medical School, Boston.

II. Seminar. The Harvard Medical School, Courses for Graduates will offer a Seminar in Legal Medicine to occupy the entire week October 4 to 9, inclusive. It is planned particularly for medical examiners and coroners' physicians, but will be open also to any other suitable graduate of an approved medical school.

The course will be practical rather than theoretical and will consist of autopsy demonstrations, technique and interpretation of laboratory tests, study of the day-by-day cases of a medical examiner, round table conferences, and the many subjects now included in the widening field of legal medicine. In order that each participant may receive the maximum benefit, the enrollment has been limited to fifteen. For the Seminar the fee is $25. Application should be made on or before October 1 to Harvard Medical School, Courses for Graduates, 25 Shattuck Street, Boston, Massachusetts.

Royal College of Surgeons of England (Regulations for the F.R.C.S.)—The Council of the Royal College of Surgeons of England has revised the regulations for the Fellowship, and the *primary* examination beginning on November 29 next will be the last to be conducted under the present regulations.

New regulations have been approved by the Council and will become effective as from the end of 1943.

These regulations embody the following changes:—

1. The *primary* examination cannot be taken by undergraduates, but will be open only to Members of the College, or to Graduates in medicine and surgery of the Universities and Medical Colleges recognized by the Council for the purpose, who are able to comply with the conditions of the regulations.
2. The subjects of the primary examination will be:—(*a*) *Anatomy (including Normal Histology), and* (*b*) *Applied Physiology and the Principles of Pathology.* A synopsis indicating the general scope and spirit of the examination in *applied physiology and the principles of pathology* is published in the new regulations.

With regard to the *final* examination, no candidate will be admissible without producing evidence of having been engaged in the acquirement of professional knowledge for not less than two years subsequent to the date of having obtained the Membership of the College or some other recognized qualification, *vide* (1) above.

The dates of the examinations have been re-arranged, so that it will be possible for candidates who pass the *primary* examination to proceed immediately to the *final* examination, if they are eligible. During 1944 the examinations will begin on the following dates:—

Primary examination—April 24 and October 23.

Final examination—May 4 and November 2.

Copies of the new regulations, and full particulars may be obtained, post free, from the Director of Examinations, Examination Hall, Queen Square, London, W.C.1.

KENNEDY CASSELS, *Secretary,*
June, 1943. *Royal College of Surgeons of England.*